Department of Defense
Fiscal Year (FY) 2020 President's Budget Estimate Submission

March 2019

Navy

Justification Book Volume 1 of 1

Shipbuilding and Conversion, Navy

The estimated cost of this report for the Department of the Navy (DON) is $107,612.

The estimated total cost for supporting the DON budget justification material is approximately $1,803,116 for the 2019 fiscal year. This includes $81,351 in supplies and $1,721,765 in labor.

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Shipbuilding and Conversion, Navy

For expenses necessary for the construction, acquisition, or conversion of vessels as authorized by law, including armor and armament thereof, plant equipment, appliances, and machine tools and installation thereof in public and private plants; reserve plant and Government and contractor-owned equipment layaway; procurement of critical, long lead time components and designs for vessels to be constructed or converted in the future; and expansion of public and private plants, including land necessary therefore, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title.

In all: $23,783,710,000, to remain available for obligation until September 30, 2031: *Provided*, That additional obligations may be incurred after September 30, 2031, for engineering services, tests, evaluations, and other such budgeted work that must be performed in the final stage of ship construction: *Provided further*, That none of the funds provided under this heading for the construction or conversion of any naval vessel to be constructed in shipyards in the United States shall be expended in foreign facilities for the construction of major components of such vessel: *Provided further*, That none of the funds provided under this heading shall be used for the construction of any naval vessel in foreign shipyards.

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Shipbuilding and Conversion, Navy	22,962,873	24,150,087		24,150,087
Total Department of the Navy	22,962,873	24,150,087		24,150,087

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO
Shipbuilding and Conversion, Navy	23,783,710			
Total Department of the Navy	23,783,710			

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation	FY 2020 Total (Base + OCO)
Shipbuilding and Conversion, Navy	23,783,710
Total Department of the Navy	23,783,710

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
01. Fleet Ballistic Missile Ships		3,173,400		3,173,400
02. Other Warships	16,556,765	17,027,255		17,027,255
03. Amphibious Ships	4,385,127	1,597,100		1,597,100
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,020,981	2,352,332		2,352,332
Total Shipbuilding and Conversion, Navy	22,962,873	24,150,087		24,150,087

P-120PB: FY 2020 President's Budget (Published Version), as of February 19, 2019 at 09:32:18

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO
01. Fleet Ballistic Missile Ships	1,698,907			
02. Other Warships	19,680,868			
03. Amphibious Ships	247,100			
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,156,835			
Total Shipbuilding and Conversion, Navy	23,783,710			

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: Shipbuilding and Conversion, Navy

Budget Activity	FY 2020 Total (Base + OCO)
01. Fleet Ballistic Missile Ships	1,698,907
02. Other Warships	19,680,868
03. Amphibious Ships	247,100
05. Auxiliaries, Craft, and Prior-Year Program Costs	2,156,835
Total Shipbuilding and Conversion, Navy	23,783,710

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
	Budget Activity 01: Fleet Ballistic Missile Ships										
	Fleet Ballistic Missile Ships										
1	OHIO Replacement Submarine										
	Advance Procurement (CY)					3,173,400				3,173,400	U
	C (FY 2019 for FY 2021) (M)					(3,016,029)				(3,016,029)	
	C (FY 2019 for FY 2024) (M)					(139,101)				(139,101)	
	C (FY 2019 for FY 2026) (M)					(770)				(770)	
	C (FY 2019 for FY 2034) (M)					(17,500)				(17,500)	
	C (FY 2020 for FY 2021) (M)										
	C (FY 2020 for FY 2024) (M)										
	C (FY 2020 for FY 2026) (M)										
	C (FY 2020 for FY 2027) (M)										
	C (FY 2020 for FY 2028) (M)										
	C (FY 2020 for FY 2029) (M)										
	C (FY 2020 for FY 2030) (M)										
	C (FY 2020 for FY 2031) (M)										
	C (FY 2020 for FY 2032) (M)										
	C (FY 2020 for FY 2033) (M)										
	C (FY 2020 for FY 2034) (M)										
	Total Fleet Ballistic Missile Ships					3,173,400				3,173,400	

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FY 2020 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
	Budget Activity 01: Fleet Ballistic Missile Ships										
	Fleet Ballistic Missile Ships										
1	OHIO Replacement Submarine										
	Advance Procurement (CY)			1,698,907							U
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2024) (M)										
	C (FY 2019 for FY 2026) (M)										
	C (FY 2019 for FY 2034) (M)										
	C (FY 2020 for FY 2021) (M)			(1,513,356)							
	C (FY 2020 for FY 2024) (M)			(148,450)							
	C (FY 2020 for FY 2026) (M)			(19,955)							
	C (FY 2020 for FY 2027) (M)			(1,458)							
	C (FY 2020 for FY 2028) (M)			(224)							
	C (FY 2020 for FY 2029) (M)			(224)							
	C (FY 2020 for FY 2030) (M)			(224)							
	C (FY 2020 for FY 2031) (M)			(224)							
	C (FY 2020 for FY 2032) (M)			(224)							
	C (FY 2020 for FY 2033) (M)			(224)							
	C (FY 2020 for FY 2034) (M)			(14,344)							
	Total Fleet Ballistic Missile Ships			1,698,907							

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
	Budget Activity 01: Fleet Ballistic Missile Ships				
	Fleet Ballistic Missile Ships				
1	OHIO Replacement Submarine				
	Advance Procurement (CY)			1,698,907	U
	C (FY 2019 for FY 2021) (M)				
	C (FY 2019 for FY 2024) (M)				
	C (FY 2019 for FY 2026) (M)				
	C (FY 2019 for FY 2034) (M)				
	C (FY 2020 for FY 2021) (M)			(1,513,356)	
	C (FY 2020 for FY 2024) (M)			(148,450)	
	C (FY 2020 for FY 2026) (M)			(19,955)	
	C (FY 2020 for FY 2027) (M)			(1,458)	
	C (FY 2020 for FY 2028) (M)			(224)	
	C (FY 2020 for FY 2029) (M)			(224)	
	C (FY 2020 for FY 2030) (M)			(224)	
	C (FY 2020 for FY 2031) (M)			(224)	
	C (FY 2020 for FY 2032) (M)			(224)	
	C (FY 2020 for FY 2033) (M)			(224)	
	C (FY 2020 for FY 2034) (M)			(14,344)	
	Total Fleet Ballistic Missile Ships			1,698,907	

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Total Obligational Authority
(Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
	Budget Activity 02: Other Warships										
	Other Warships										
2	Carrier Replacement Program	A	1	(12,335,110)		(618,000)				(618,000)	U
	Less: Advance Procurement (PY)			(-2,233,142)							U
	Less: Subsequent Full Funding (FY)			(-8,532,322)							U
				1,569,646		618,000				618,000	
	Subsequent Full Funding for FY 2013			2,561,058							
	Subsequent Full Funding for FY 2018					955,181				955,181	
	Completion PY Shipbuild for FY 2008			20,000							
3	Virginia Class Submarine	B	2	(5,532,718)	2	(6,500,178)			2	(6,500,178)	U
	Less: Advance Procurement (PY)			(-2,227,403)		(-2,159,502)				(-2,159,502)	U
				3,305,315		4,340,676				4,340,676	
4	Virginia Class Submarine Advance Procurement (CY)			2,145,596		2,796,401				2,796,401	U
	C (FY 2018 for FY 2019) (M)			(783,208)							
	C (FY 2018 for FY 2020) (M)			(1,283,228)							
	C (FY 2018 for FY 2021) (M)			(31,008)							
	C (FY 2018 for FY 2022) (M)			(24,126)							
	C (FY 2018 for FY 2023) (M)			(24,026)							
	C (FY 2019 for FY 2020) (M)					(835,268)				(835,268)	
	C (FY 2019 for FY 2021) (M)					(1,468,403)				(1,468,403)	
	C (FY 2019 for FY 2022) (M)					(246,365)				(246,365)	
	C (FY 2019 for FY 2023) (M)					(246,365)				(246,365)	
	C (FY 2020 for FY 2021) (M)										
	C (FY 2020 for FY 2022) (M)										
	C (FY 2020 for FY 2023) (M)										

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Total Obligational Authority
(Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
	Budget Activity 02: Other Warships										
	Other Warships										
2	Carrier Replacement Program	A	1	(12,450,695)							U
	Less: Advance Procurement (PY)										U
	Less: Subsequent Full Funding (FY)			(-11,165,695)							U
				1,285,000							
	Subsequent Full Funding for FY 2013										
	Subsequent Full Funding for FY 2018			1,062,000							
	Completion PY Shipbuild for FY 2008										
3	Virginia Class Submarine	B	3	(9,274,442)							U
	Less: Advance Procurement (PY)			(-2,118,496)							U
				7,155,946							
4	Virginia Class Submarine										
	Advance Procurement (CY)			2,769,552							U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2018 for FY 2020) (M)										
	C (FY 2018 for FY 2021) (M)										
	C (FY 2018 for FY 2022) (M)										
	C (FY 2018 for FY 2023) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2019 for FY 2023) (M)										
	C (FY 2020 for FY 2021) (M)			(912,629)							
	C (FY 2020 for FY 2022) (M)			(1,562,935)							
	C (FY 2020 for FY 2023) (M)			(293,988)							

Department of the Navy
FY 2020 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
	Budget Activity 02: Other Warships				
	Other Warships				
2	Carrier Replacement Program	A	1	(12,450,695)	U
	Less: Advance Procurement (PY)				U
	Less: Subsequent Full Funding (FY)			(-11,165,695)	U
				1,285,000	
	Subsequent Full Funding for FY 2013				
	Subsequent Full Funding for FY 2018			1,062,000	
	Completion PY Shipbuild for FY 2008				
3	Virginia Class Submarine	B	3	(9,274,442)	U
	Less: Advance Procurement (PY)			(-2,118,496)	U
				7,155,946	
4	Virginia Class Submarine				
	Advance Procurement (CY)			2,769,552	U
	C (FY 2018 for FY 2019) (M)				
	C (FY 2018 for FY 2020) (M)				
	C (FY 2018 for FY 2021) (M)				
	C (FY 2018 for FY 2022) (M)				
	C (FY 2018 for FY 2023) (M)				
	C (FY 2019 for FY 2020) (M)				
	C (FY 2019 for FY 2021) (M)				
	C (FY 2019 for FY 2022) (M)				
	C (FY 2019 for FY 2023) (M)				
	C (FY 2020 for FY 2021) (M)			(912,629)	
	C (FY 2020 for FY 2022) (M)			(1,562,935)	
	C (FY 2020 for FY 2023) (M)			(293,988)	

Department of the Navy
FY 2020 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
5	CVN Refueling Overhauls	A									U
	Less: Advance Procurement (PY)										U
	Less: Subsequent Full Funding (FY)										U
				---		---		---		---	
	Subsequent Full Funding for FY 2016			1,569,669							
6	CVN Refueling Overhauls										
	Advance Procurement (CY)			75,897		425,873				425,873	U
	C (FY 2018 for FY 2021) (M)			(75,897)							
	C (FY 2019 for FY 2021) (M)					(425,873)				(425,873)	
7	DDG 1000	A		216,968		270,965				270,965	U
8	DDG-51	A	2	(3,357,079)	3	(5,289,199)			3	(5,289,199)	U
	Less: Advance Procurement (PY)					(-39,362)				(-39,362)	U
				---		---		---		---	
				3,357,079		5,249,837				5,249,837	
	Completion PY Shipbuild for FY 2012			19,436							
	Completion PY Shipbuild for FY 2013			31,941		53,966				53,966	
9	DDG-51										
	Advance Procurement (CY)			90,336		641,928				641,928	U
	C (FY 2018 for FY 2019) (M)			(39,362)							
	C (FY 2018 for FY 2020) (M)			(25,940)							
	C (FY 2018 for FY 2021) (M)			(12,517)							
	C (FY 2018 for FY 2022) (M)			(12,517)							
	C (FY 2019 for FY 2020) (M)					(337,720)				(337,720)	
	C (FY 2019 for FY 2021) (M)					(152,104)				(152,104)	
	C (FY 2019 for FY 2022) (M)					(152,104)				(152,104)	
	C (FY 2020 for FY 2021) (M)										
	C (FY 2020 for FY 2022) (M)										

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
5	CVN Refueling Overhauls	A	1	(5,640,212)							U
	Less: Advance Procurement (PY)			(-749,870)							U
	Less: Subsequent Full Funding (FY)			(-3,760,627)							U
	Less: Prior Year OPN funding			(-481,789)							U
				647,926							
	Subsequent Full Funding for FY 2016										
6	CVN Refueling Overhauls										
	Advance Procurement (CY)										U
	C (FY 2018 for FY 2021) (M)										
	C (FY 2019 for FY 2021) (M)										
7	DDG 1000	A		155,944							U
8	DDG-51	A	3	(5,462,955)							U
	Less: Advance Procurement (PY)			(-363,660)							U
				5,099,295							
	Completion PY Shipbuild for FY 2012										
	Completion PY Shipbuild for FY 2013										
9	DDG-51										
	Advance Procurement (CY)			224,028							U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2018 for FY 2020) (M)										
	C (FY 2018 for FY 2021) (M)										
	C (FY 2018 for FY 2022) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2019 for FY 2021) (M)										
	C (FY 2019 for FY 2022) (M)										
	C (FY 2020 for FY 2021) (M)			(112,014)							
	C (FY 2020 for FY 2022) (M)			(112,014)							

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Department of the Navy
FY 2020 President's Budget
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(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
5	CVN Refueling Overhauls	A	1	(5,640,212)	U
	Less: Advance Procurement (PY)			(-749,870)	U
	Less: Subsequent Full Funding (FY)			(-3,760,627)	U
	Less: Prior Year OPN funding			(-481,789)	U
				647,926	
	Subsequent Full Funding for FY 2016				
6	CVN Refueling Overhauls				
	Advance Procurement (CY)				U
	C (FY 2018 for FY 2021) (M)				
	C (FY 2019 for FY 2021) (M)				
7	DDG 1000	A		155,944	U
8	DDG-51	A	3	(5,462,955)	U
	Less: Advance Procurement (PY)			(-363,660)	U
				5,099,295	
	Completion PY Shipbuild for FY 2012				
	Completion PY Shipbuild for FY 2013				
9	DDG-51				
	Advance Procurement (CY)			224,028	U
	C (FY 2018 for FY 2019) (M)				
	C (FY 2018 for FY 2020) (M)				
	C (FY 2018 for FY 2021) (M)				
	C (FY 2018 for FY 2022) (M)				
	C (FY 2019 for FY 2020) (M)				
	C (FY 2019 for FY 2021) (M)				
	C (FY 2019 for FY 2022) (M)				
	C (FY 2020 for FY 2021) (M)			(112,014)	
	C (FY 2020 for FY 2022) (M)			(112,014)	

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Total Obligational Authority
(Dollars in Thousands)

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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
10	Littoral Combat Ship	A	3	1,566,959	3	1,571,244			3	1,571,244	U
	Completion PY Shipbuild for FY 2012			6,394							
	Completion PY Shipbuild for FY 2014			20,471		19,498				19,498	
	Completion PY Shipbuild for FY 2015					83,686				83,686	
11	FFG-Frigate	A									U
Total Other Warships				16,556,765		17,027,255				17,027,255	
Budget Activity 03: Amphibious Ships											
	Amphibious Ships										
12	LPD Flight II	A	1	(1,814,000)							U
	Less: Advance Procurement (PY)			(-14,000)							U
				1,800,000							
13	LPD Flight II										
	Advance Procurement (CY)					350,000				350,000	U
	C (FY 2019 for FY 2020) (M)					(350,000)				(350,000)	
	C (FY 2020 for FY 2021) (M)										
14	Expeditionary Sea Base (ESB)	A	1	635,000	1	647,000			1	647,000	U

Department of the Navy
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Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
10	Littoral Combat Ship	A									U
	Completion PY Shipbuild for FY 2012										
	Completion PY Shipbuild for FY 2014										
	Completion PY Shipbuild for FY 2015										
11	FFG-Frigate	A	1	1,281,177							U
Total Other Warships				19,680,868							
Budget Activity 03: Amphibious Ships											
	Amphibious Ships										
12	LPD Flight II	A									U
	Less: Advance Procurement (PY)										U
13	LPD Flight II										
	Advance Procurement (CY)			247,100							U
	C (FY 2019 for FY 2020) (M)										
	C (FY 2020 for FY 2021) (M)			(247,100)							
14	Expeditionary Sea Base (ESB)	A									U

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Department of the Navy
FY 2020 President's Budget
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Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
10	Littoral Combat Ship	A			U
	Completion PY Shipbuild for FY 2012				
	Completion PY Shipbuild for FY 2014				
	Completion PY Shipbuild for FY 2015				
11	FFG-Frigate	A	1	1,281,177	U
	Total Other Warships			19,680,868	
	Budget Activity 03: Amphibious Ships				
	Amphibious Ships				
12	LPD Flight II	A			U
	Less: Advance Procurement (PY)				U
13	LPD Flight II				
	Advance Procurement (CY)			247,100	U
	C (FY 2019 for FY 2020) (M)				
	C (FY 2020 for FY 2021) (M)			(247,100)	
14	Expeditionary Sea Base (ESB)	A			U

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
15	LHA Replacement	A									
	Subsequent Full Funding for FY 2017			1,710,927							
	Completion PY Shipbuild for FY 2011					25,100				25,100	
	Completion PY Shipbuild for FY 2012			14,200							
16	LHA Replacement										
	Advance Procurement (CY)					350,000				350,000	U
	C (FY 2019 for FY 2024) (M)					(350,000)				(350,000)	
17	Expeditionary Fast Transport (EPF)	A	1	225,000	1	225,000			1	225,000	U
Total Amphibious Ships				4,385,127		1,597,100				1,597,100	
Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs											
	Auxiliaries, Craft and Prior Yr Program Cost										
18	TAO Fleet Oiler	A	1	(534,767)	2	(1,052,172)			2	(1,052,172)	U
	Less: Advance Procurement (PY)			(-73,079)		(-75,068)				(-75,068)	U
	Less: Future Completion of Shipbuilding (FY)			(-3,700)							U
				457,988		977,104				977,104	
	Completion PY Shipbuild for FY 2016					15,449				15,449	
19	TAO Fleet Oiler										
	Advance Procurement (CY)			75,068		75,046				75,046	U
	C (FY 2018 for FY 2019) (M)			(75,068)							
	C (FY 2019 for FY 2020) (M)					(75,046)				(75,046)	
	C (FY 2020 for FY 2021) (M)										
20	Towing, Salvage, and Rescue Ship (ATS)	A	1	76,204	1	80,517			1	80,517	U
21	Oceanographic Ships	A	1	180,000							U
22	LCU 1700	A			2	41,520			2	41,520	U

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
15	LHA Replacement	A									
	Subsequent Full Funding for FY 2017										
	Completion PY Shipbuild for FY 2011										
	Completion PY Shipbuild for FY 2012										
16	LHA Replacement										
	Advance Procurement (CY)										U
	C (FY 2019 for FY 2024) (M)										
17	Expeditionary Fast Transport (EPF)	A									U
Total Amphibious Ships				247,100							
Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs											
Auxiliaries, Craft and Prior Yr Program Cost											
18	TAO Fleet Oiler	A	2	(1,056,261)							U
	Less: Advance Procurement (PY)			(-75,046)							U
	Less: Future Completion of Shipbuilding (FY)										U
				981,215							
	Completion PY Shipbuild for FY 2016										
19	TAO Fleet Oiler										
	Advance Procurement (CY)			73,000							U
	C (FY 2018 for FY 2019) (M)										
	C (FY 2019 for FY 2020) (M)										
	C (FY 2020 for FY 2021) (M)			(73,000)							
20	Towing, Salvage, and Rescue Ship (ATS)	A	2	150,282							U
21	Oceanographic Ships	A									U
22	LCU 1700	A	4	85,670							U

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
15	LHA Replacement	A			
	Subsequent Full Funding for FY 2017				
	Completion PY Shipbuild for FY 2011				
	Completion PY Shipbuild for FY 2012				
16	LHA Replacement				
	Advance Procurement (CY)				U
	C (FY 2019 for FY 2024) (M)				
17	Expeditionary Fast Transport (EPF)	A			U
	Total Amphibious Ships			247,100	
	Budget Activity 05: Auxiliaries, Craft, and Prior-Year Program Costs				
	Auxiliaries, Craft and Prior Yr Program Cost				
18	TAO Fleet Oiler	A	2	(1,056,261)	U
	Less: Advance Procurement (PY)			(-75,046)	U
	Less: Future Completion of Shipbuilding (FY)				U
				981,215	
	Completion PY Shipbuild for FY 2016				
19	TAO Fleet Oiler				
	Advance Procurement (CY)			73,000	U
	C (FY 2018 for FY 2019) (M)				
	C (FY 2019 for FY 2020) (M)				
	C (FY 2020 for FY 2021) (M)			(73,000)	
20	Towing, Salvage, and Rescue Ship (ATS)	A	2	150,282	U
21	Oceanographic Ships	A			U
22	LCU 1700	A	4	85,670	U

P-120PB: FY 2020 President's Budget (Published Version), as of February 19, 2019 at 09:32:18

Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2018 (Base + OCO) Quantity	FY 2018 (Base + OCO) Cost	FY 2019 Base Enacted Quantity	FY 2019 Base Enacted Cost	FY 2019 OCO Enacted Quantity	FY 2019 OCO Enacted Cost	FY 2019 Total Enacted Quantity	FY 2019 Total Enacted Cost	Sec
23	Outfitting	A		489,073		550,038				550,038	U
24	Ship to Shore Connector	A	8	524,554	8	507,875			8	507,875	U
	Completion PY Shipbuild for FY 2015			5,100		9,400				9,400	
25	Service Craft	A		62,994		72,062				72,062	U
26	LCAC SLEP	A			1	23,321			1	23,321	U
27	Uscg Icebreakers										
	Advance Procurement (CY)			150,000							U
	C (FY 2018 for FY 2020) (M)			(150,000)							
28	Completion of PY Shipbuilding Programs	A									U
	AUX (MEMO NON ADD)										U
	LCS (MEMO NON ADD)										U
	AFSB (MEMO NON ADD)										U
Total Auxiliaries, Craft, and Prior-Year Program Costs				2,020,981		2,352,332				2,352,332	
Total Shipbuilding and Conversion, Navy				22,962,873		24,150,087				24,150,087	

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Base Quantity	FY 2020 Base Cost	FY 2020 OCO for Base Requirements Quantity	FY 2020 OCO for Base Requirements Cost	FY 2020 OCO for Direct War and Enduring Costs Quantity	FY 2020 OCO for Direct War and Enduring Costs Cost	FY 2020 Total OCO Quantity	FY 2020 Total OCO Cost	Sec
23	Outfitting	A		754,679							U
24	Ship to Shore Connector	A									U
	Completion PY Shipbuild for FY 2015										
25	Service Craft	A		56,289							U
26	LCAC SLEP	A									U
27	Uscg Icebreakers Advance Procurement (CY) C (FY 2018 for FY 2020) (M)										U
28	Completion of PY Shipbuilding Programs	A		55,700							U
	AUX (MEMO NON ADD)			(3,700)							U
	LCS (MEMO NON ADD)			(14,000)							U
	AFSB (MEMO NON ADD)			(38,000)							U
Total Auxiliaries, Craft, and Prior-Year Program Costs				2,156,835							
Total Shipbuilding and Conversion, Navy				23,783,710							

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Department of the Navy
FY 2020 President's Budget
Exhibit P-1 FY 2020 President's Budget
Total Obligational Authority
(Dollars in Thousands)

19 Feb 2019

Appropriation: 1611N Shipbuilding and Conversion, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Total (Base + OCO) Quantity	Cost	Sec
23	Outfitting	A		754,679	U
24	Ship to Shore Connector	A			U
	Completion PY Shipbuild for FY 2015				
25	Service Craft	A		56,289	U
26	LCAC SLEP	A			U
27	Uscg Icebreakers Advance Procurement (CY) C (FY 2018 for FY 2020) (M)				U
28	Completion of PY Shipbuilding Programs	A		55,700	U
	AUX (MEMO NON ADD)			(3,700)	U
	LCS (MEMO NON ADD)			(14,000)	U
	AFSB (MEMO NON ADD)			(38,000)	U
Total Auxiliaries, Craft, and Prior-Year Program Costs				2,156,835	
Total Shipbuilding and Conversion, Navy				23,783,710	

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Appropriation 1611N: Shipbuilding and Conversion, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
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3	02	01	2013	Virginia Class Submarine	Volume 1 - 43
4	02	01	2013	Virginia Class Submarine, Advance Procurement	Volume 1 - 57
5	02	01	2086	CVN Refueling Overhauls	Volume 1 - 61
7	02	01	2119	DDG 1000	Volume 1 - 99
8	02	01	2122	DDG-51	Volume 1 - 123
9	02	01	2122	DDG-51, Advance Procurement	Volume 1 - 147
10	02	01	2127	Littoral Combat Ship (LCS)	Volume 1 - 149
11	02	01	2128	FFG-Frigate	Volume 1 - 159

Appropriation 1611N: Shipbuilding and Conversion, Navy

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13	03	01	3010	LPD Flight II, Advance Procurement	Volume 1 - 203
14	03	01	3039	Expeditionary Sea Base (ESB)	Volume 1 - 205
15	03	01	3041	LHA Replacement	Volume 1 - 213
16	03	01	3041	LHA Replacement, Advance Procurement	Volume 1 - 241
17	03	01	3043	Expeditionary Fast Transport (EPF)	Volume 1 - 245
991	03	01	3036	LPD-17	Volume 1 - 253

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18	05	01	5025	TAO Fleet Oiler	Volume 1 - 257
19	05	01	5025	TAO Fleet Oiler, Advance Procurement	Volume 1 - 265
20	05	01	5035	Towing, Salvage, and Rescue Ship (ATS)	Volume 1 - 267
21	05	01	5087	Oceanographic Ships	Volume 1 - 271

Appropriation 1611N: Shipbuilding and Conversion, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
22	05	01	5100	LCU 1700	Volume 1 - 275
23	05	01	5110	Outfitting	Volume 1 - 279
24	05	01	5112	Ship to Shore Connector	Volume 1 - 291
25	05	01	5113	Service Craft	Volume 1 - 299
26	05	01	5139	LCAC SLEP	Volume 1 - 305
28	05	01	5300	Completion of PY Shpbldg Progr	Volume 1 - 309
995	05	01	5092	Moored Training Ship	Volume 1 - 313
996	05	01	5212	YP Craft Maintenance/ROH/SLEP	Volume 1 - 317

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Line Item Title	Line Item Number	Line #	BA	BSA	Page
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CVN Refueling Overhauls	2086	5	02	01	Volume 1 - 61
Carrier Replacement Program	2001	2	02	01	Volume 1 - 13
Completion of PY Shpbldg Progr	5300	28	05	01	Volume 1 - 309
DDG 1000	2119	7	02	01	Volume 1 - 99
DDG-51	2122	8	02	01	Volume 1 - 123
DDG-51, Advance Procurement	2122	9	02	01	Volume 1 - 147
Expeditionary Fast Transport (EPF)	3043	17	03	01	Volume 1 - 245
Expeditionary Sea Base (ESB)	3039	14	03	01	Volume 1 - 205
FFG-Frigate	2128	11	02	01	Volume 1 - 159
LCAC SLEP	5139	26	05	01	Volume 1 - 305
LCU 1700	5100	22	05	01	Volume 1 - 275
LHA Replacement	3041	15	03	01	Volume 1 - 213
LHA Replacement, Advance Procurement	3041	16	03	01	Volume 1 - 241
LPD Flight II	3010	12	03	01	Volume 1 - 185
LPD Flight II, Advance Procurement	3010	13	03	01	Volume 1 - 203
LPD-17	3036	991	03	01	Volume 1 - 253

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Littoral Combat Ship (LCS)	2127	10	02	01	Volume 1 - 149
Moored Training Ship	5092	995	05	01	Volume 1 - 313
Oceanographic Ships	5087	21	05	01	Volume 1 - 271
Outfitting	5110	23	05	01	Volume 1 - 279
Service Craft	5113	25	05	01	Volume 1 - 299
Ship to Shore Connector	5112	24	05	01	Volume 1 - 291
TAO Fleet Oiler	5025	18	05	01	Volume 1 - 257
TAO Fleet Oiler, Advance Procurement	5025	19	05	01	Volume 1 - 265
Towing, Salvage, and Rescue Ship (ATS)	5035	20	05	01	Volume 1 - 267
Virginia Class Submarine	2013	3	02	01	Volume 1 - 43
Virginia Class Submarine, Advance Procurement	2013	4	02	01	Volume 1 - 57
YP Craft Maintenance/ROH/SLEP	5212	996	05	01	Volume 1 - 317

Exhibit P-40, Advance Procurement Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 01: Fleet Ballistic Missile Ships / BSA 1: Fleet Ballistic Missile Ships	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine
Program Elements for Code B Items: N/A	**Other Related Program Elements:** 0603595N, 0603570N
Line Item MDAP/MAIS Code: P444	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Gross/Weapon System Cost *($ in Millions)*	773.138	861.853	3,173.400	1,698.907	-	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306	26,402.265	39,007.619
Net Procurement (P-1) *($ in Millions)*	773.138	861.853	3,173.400	1,698.907	-	1,698.907	1,074.805	1,136.484	1,794.461	2,092.306	26,402.265	39,007.619
Total Obligation Authority *($ in Millions)*	**773.138**	**861.853**	**3,173.400**	**1,698.907**	**-**	**1,698.907**	**1,074.805**	**1,136.484**	**1,794.461**	**2,092.306**	**26,402.265**	**39,007.619**

Description:

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine	
First System (2020) Award Date: October 2020	**First System (2020) Completion Date:** October 2027	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
PLANS									
Lead Ship Design (1)	12-60	Various	741.424	628.670	723.189	-	-	-	-
Supplier Development (2)	12-60	Various	-	127.300	22.400	-	-	-	-
Total: PLANS			*741.424*	*755.970*	*745.589*	-	-	-	-
BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM									
SSBN 826	24-42	Various	-	405.133	460.471	-	-	-	-
SSBN 827	24-42	Various	-	-	0.000	-	184.262	365.660	-
SSBN 828	24-42	Various	-	-	0.000	-	-	-	311.155
Total: BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM			-	*405.133*	*460.471*	-	*184.262*	*365.660*	*311.155*
BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION									
SSBN 827	36	Various	59.537	59.671	66.169	-	-	-	-
SSBN 828	36	Various	-	-	19.477	86.288	90.522	-	-
SSBN 829	36	Various	-	-	0.000	-	57.399	112.201	38.288
SSBN 830	36	Various	-	-	0.000	-	-	-	55.899
Total: BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION			*59.537*	*59.671*	*85.646*	*86.288*	*147.921*	*112.201*	*94.187*
BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION									
SSBN 826	24-42	Various	28.518	72.100	148.380	-	-	-	-
SSBN 827	24-42	Various	-	-	0.000	2.783	78.260	236.450	-
SSBN 828	24-42	Various	-	-	0.000	-	-	2.851	88.552
SSBN 829	24-42	Various	-	-	0.000	-	-	-	3.000
Total: BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION			*28.518*	*72.100*	*148.380*	*2.783*	*78.260*	*239.301*	*91.552*
BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT									
SSBN 827	24-42	Various	-	78.380	61.447	-	-	-	-
SSBN 837 - Production Backup Units	24-42	Various	-	17.500	13.896	12.299	12.198	11.898	13.998
Total: BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT			-	*95.880*	*75.343*	*12.299*	*12.198*	*11.898*	*13.998*
BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION									
SSBN827	12-36	Various	-	1.050	5.808	9.462	12.229	16.145	-

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine	
First System (2020) Award Date: October 2020	**First System (2020) Completion Date:** October 2027	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
SSBN828	12-36	Various	-	0.770	0.000	4.530	8.210	2.780	16.268
SSBN829	12-36	Various	-	-	0.980	-	4.560	5.860	5.789
SSBN830	12-36	Various	-	-	0.000	0.930	-	5.780	4.000
SSBN831	12-36	Various	-	-	0.000	-	0.930	-	4.610
SSBN832	12-36	Various	-	-	0.000	-	-	1.180	-
SSBN833	12-36	Various	-	-	0.000	-	-	-	0.940
Total: BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION			-	*1.820*	*6.788*	*14.922*	*25.929*	*31.745*	*31.607*
NUCLEAR PROPULSION PLANT EQUIPMENT (8)									
SSBN 826	30-72	Various	-	1,700.896	0.000	-	-	-	-
SSBN 827 (In support of AC)	30-72	Various	-	-	0.000	952.737	661.262	-	-
SSBN 828 (In Support of AC)	30-72	Various	-	-	0.000	-	-	918.373	636.627
SSBN 829 (In Support of AC)	30-72	Various	-	-	0.000	-	-	-	899.000
Total: NUCLEAR PROPULSION PLANT EQUIPMENT (8)			-	*1,700.896*	-	*952.737*	*661.262*	*918.373*	*1,535.627*
HM&E (9)									
SSBN 826 (In support of AC)	24-42	Various	-	26.000	41.948	-	-	-	-
SSBN 827 (In Support of AC)	24-42	Various	-	-	0.000	-	-	51.919	-
Total: HM&E (9)			-	*26.000*	*41.948*	-	-	*51.919*	-
ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM									
SSBN 826 (In Support of AC)	12-28	Various	-	48.300	83.783	-	-	-	-
SSBN 827 (In Support of AC)	12-48	Various	-	-	6.237	1.912	20.623	55.707	-
SSBN 828	12-28	Various	-	-	0.000	-	-	-	3.785
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM			-	*48.300*	*90.020*	*1.912*	*20.623*	*55.707*	*3.785*
ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY									
SSBN 826	12-24	Various	-	-	0.224	-	-	-	-
SSBN 827	12-24	Various	-	-	0.478	0.002	0.141	0.035	-
SSBN 828	12-24	Various	-	-	0.478	0.002	0.141	0.054	0.022
SSBN 829	12-24	Various	-	-	0.478	0.002	0.141	0.054	0.022
SSBN 830	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine	
First System (2020) Award Date: October 2020	**First System (2020) Completion Date:** October 2027	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
SSBN 831	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 832	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 833	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 834	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 835	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 836	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
SSBN 837	12-24	Various	-	-	0.224	0.002	0.141	0.054	0.022
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY			-	-	*3.450*	*0.022*	*1.551*	*0.575*	*0.220*
ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION									
SSBN 827	12-24	Various	-	-	0.000	2.034	-	-	-
SSBN 828	12-24	Various	-	-	0.000	1.808	0.224	-	-
SSBN 829	12-24	Various	-	-	0.000	-	2.015	-	-
SSBN 830	12-24	Various	-	-	0.000	-	2.015	-	-
SSBN 831	12-24	Various	-	-	0.000	-	0.224	1.828	-
SSBN 832	12-24	Various	-	-	0.000	-	-	2.056	-
SSBN 833	12-24	Various	-	-	0.000	-	-	2.056	-
SSBN 834	12-24	Various	-	-	0.000	-	-	1.142	1.313
SSBN 835	12-24	Various	-	-	0.000	-	-	-	2.954
SSBN 836	12-24	Various	-	-	0.000	-	-	-	2.954
SSBN 837	12-24	Various	-	-	0.000	-	-	-	2.954
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION			-	-	-	*3.842*	*4.478*	*7.082*	*10.175*
NFPC EXTERNAL POWER UPGRADE (13)									
-	12	Various	32.374	-	0.000	-	-	-	-
Total: NFPC EXTERNAL POWER UPGRADE (13)			*32.374*	-	-	-	-	-	-
ELECTRONICS (14)									
SSBN 826	12-24	Various	-	7.630	32.961	-	-	-	-
SSBN 827 (EOQ in support of Multi-Program Procurement)	12-24	Various	-	-	8.311	-	-	-	-
Total: ELECTRONICS (14)			-	*7.630*	*41.272*	-	-	-	-

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1		**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine	
First System (2020) Award Date: October 2020	**First System (2020) Completion Date:** October 2027	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime *(Months)*	When Required* *(Months)*	FY 2018 *($ M)*	FY 2019 *($ M)*	FY 2020 *($ M)*	FY 2021 *($ M)*	FY 2022 *($ M)*	FY 2023 *($ M)*	FY 2024 *($ M)*
Total Advance Procurement/Obligation Authority			**861.853**	**3,173.400**	**1,698.907**	**1,074.805**	**1,136.484**	**1,794.461**	**2,092.306**

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine

Cost Elements	FY 2020						
	Production Leadtime *(Months)*	When Required* *(Months)*	Unit Cost *($ M)*	Contract Forecast Date	2020 Qty *(Each)*	For FY	Total Cost Request *($ M)*
PLANS							
Lead Ship Design (1)	12-60	Various	-	Oct 2019	-	2021	723.189
Supplier Development (2)	12-60	Various	-	Oct 2019	-	2021	22.400
Total: PLANS							*745.589*
BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM							
SSBN 826	24-42	Various	-	Oct 2019	-	2021	460.471
SSBN 827	24-42	Various	-		-	2024	0.000
SSBN 828	24-42	Various	-		-	2026	0.000
Total: BASIC CONSTRUCTION (3) - SHIPBUILDER PROCURED LLTM							*460.471*
BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION							
SSBN 827	36	Various	-	Oct 2019	-	2024	66.169
SSBN 828	36	Various	-	Oct 2019	-	2026	19.477
SSBN 829	36	Various	-		-	2027	0.000
SSBN 830	36	Various	-		-	2028	0.000
Total: BASIC CONSTRUCTION (4) - MISSILE TUBE CONTINUOUS PRODUCTION							*85.646*
BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION							
SSBN 826	24-42	Various	-	Oct 2019	-	2021	148.380
SSBN 827	24-42	Various	-		-	2024	0.000
SSBN 828	24-42	Various	-		-	2026	0.000
SSBN 829	24-42	Various	-		-	2027	0.000
Total: BASIC CONSTRUCTION (5) - ADVANCE CONSTRUCTION							*148.380*
BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT							
SSBN 827	24-42	Various	-	Oct 2019	-	2024	61.447
SSBN 837 - Production Backup Units	24-42	Various	-	Oct 2019	-	2035	13.896
Total: BASIC CONSTRUCTION (6) - EOQ IN SUPPORT OF MULTI-PROGRAM PROCUREMENT							*75.343*
BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION							
SSBN827	12-36	Various	-	Oct 2019	-	2024	5.808
SSBN828	12-36	Various	-	Oct 2019	-	2026	0.000

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine

Cost Elements	FY 2020						
	Production Leadtime *(Months)*	When Required* *(Months)*	Unit Cost *($ M)*	Contract Forecast Date	2020 Qty *(Each)*	For FY	Total Cost Request *($ M)*
SSBN829	12-36	Various	-	Oct 2019	-	2027	0.980
SSBN830	12-36	Various	-		-	2028	0.000
SSBN831	12-36	Various	-		-	2029	0.000
SSBN832	12-36	Various	-		-	2030	0.000
SSBN833	12-36	Various	-		-	2031	0.000
Total: BASIC CONSTRUCTION (7) - SHIPYARD MANUFACTURED ITEMS CONTINUOUS PRODUCTION							*6.788*
NUCLEAR PROPULSION PLANT EQUIPMENT (8)							
SSBN 826	30-72	Various	-		-	2021	0.000
SSBN 827 (In support of AC)	30-72	Various	-		-	2024	0.000
SSBN 828 (In Support of AC)	30-72	Various	-		-	2026	0.000
SSBN 829 (In Support of AC)	30-72	Various	-		-	2027	0.000
Total: NUCLEAR PROPULSION PLANT EQUIPMENT (8)							-
HM&E (9)							
SSBN 826 (In support of AC)	24-42	Various	-	Oct 2019	-	2021	41.948
SSBN 827 (In Support of AC)	24-42	Various	-		-	2024	0.000
Total: HM&E (9)							*41.948*
ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM							
SSBN 826 (In Support of AC)	12-28	Various	-	Oct 2019	-	2021	83.783
SSBN 827 (In Support of AC)	12-48	Various	-	Oct 2019	-	2024	6.237
SSBN 828	12-28	Various	-		-	2026	0.000
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (10) - LLTM							*90.020*
ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY							
SSBN 826	12-24	Various	-	Oct 2019	-	2021	0.224
SSBN 827	12-24	Various	-	Oct 2019	-	2024	0.478
SSBN 828	12-24	Various	-	Oct 2019	-	2026	0.478
SSBN 829	12-24	Various	-	Oct 2019	-	2027	0.478
SSBN 830	12-24	Various	-	Oct 2019	-	2028	0.224
SSBN 831	12-24	Various	-	Oct 2019	-	2029	0.224
SSBN 832	12-24	Various	-	Oct 2019	-	2030	0.224

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine

Cost Elements	FY 2020						
	Production Leadtime *(Months)*	When Required* *(Months)*	Unit Cost *($ M)*	Contract Forecast Date	2020 Qty *(Each)*	For FY	Total Cost Request *($ M)*
SSBN 833	12-24	Various	-	Oct 2019	-	2031	0.224
SSBN 834	12-24	Various	-	Oct 2019	-	2032	0.224
SSBN 835	12-24	Various	-	Oct 2019	-	2033	0.224
SSBN 836	12-24	Various	-	Oct 2019	-	2034	0.224
SSBN 837	12-24	Various	-	Oct 2019	-	2035	0.224
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (11) - ECONOMIC ORDER QUANTITY							*3.450*
ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION							
SSBN 827	12-24	Various	-		-	2024	0.000
SSBN 828	12-24	Various	-		-	2026	0.000
SSBN 829	12-24	Various	-		-	2027	0.000
SSBN 830	12-24	Various	-		-	2028	0.000
SSBN 831	12-24	Various	-		-	2029	0.000
SSBN 832	12-24	Various	-		-	2030	0.000
SSBN 833	12-24	Various	-		-	2031	0.000
SSBN 834	12-24	Various	-		-	2032	0.000
SSBN 835	12-24	Various	-		-	2033	0.000
SSBN 836	12-24	Various	-		-	2034	0.000
SSBN 837	12-24	Various	-		-	2035	0.000
Total: ORDNANCE SWS SHIPBOARD SYSTEMS (12) - CONTINUOUS PRODUCTION							-
NFPC EXTERNAL POWER UPGRADE (13)							
-	12	Various	-		-		0.000
Total: NFPC EXTERNAL POWER UPGRADE (13)							-
ELECTRONICS (14)							
SSBN 826	12-24	Various	-	Oct 2019	-	2021	32.961
SSBN 827 (EOQ in support of Multi-Program Procurement)	12-24	Various	-	Oct 2019	-	2024	8.311
Total: ELECTRONICS (14)							*41.272*
Total Advance Procurement/Obligation Authority							**1,698.907**

Description:

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine

MISSION: Strategic Deterrence. The COLUMBIA Class Program is an Acquisition Category (ACAT) ID Major Defense Acquisition Program (MDAP) to design, construct, and deliver a replacement for the OHIO Class Fleet Ballistic Missile Submarines (SSBNs), which begin retiring at a rate of one per year beginning in 2027. The mission of the COLUMBIA SSBN is to maintain an appropriate state of readiness to assist in deterring nuclear attack on the United States and its allies. In the event deterrence should fail, the force must be capable of launching missiles against pre-planned or adaptively planned targets. To fulfill this mission COLUMBIA SSBNs must be capable of performing extended strategic deterrent patrols without requiring assistance or replenishment. It does not have a requirement for additional capabilities or other missions unrelated to survivable strategic nuclear deterrence.

Armament:
Torpedo Tubes
Ballistic Missile Tubes

Major Electronics:
Trident D5 Strategic Weapons System
Command, Control, Communications and Intelligence System
- Open System Architecture
- Twenty-three Subsystems

JUSTIFICATION: The FY20 request supports detailed design and procurement of Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE) Long Lead Time Material (LLTM). Funding also supports Continuous Production of Missile Tubes, Advance Construction (AC), Economic Order Quantity (EOQ) for Multi-Program Procurement, Continuous Production of Shipyard Manufactured Items, and Supplier Development to reduce COLUMBIA Class construction schedule risk executed in accordance with enhanced acquisition authorities contained within the U.S.C. 2218a. These funds are required in October of 2019 to ensure the COLUMBIA Program meets program schedules and the components will meet contractor in yard need dates to support on time construction start and delivery. Since the PB19 submission, the COLUMBIA Class Program has invested in several initiatives to reduce construction schedule risk and enable cost savings. Multi-Program Procurement aligns CLB funding to coordinate shipbuilder material procurements with VIRGINIA Class and CVN for common components and vendors, to reduce construction schedule risk and strengthen the submarine industrial base through accelerated, level-loaded and optimized material procurement. Continuous Production of Shipyard Manufactured Items reduces schedule risk by ensuring critical material is available to support construction schedules. Supplier Development efforts reduce construction schedule risk and strengthen the submarine industrial base by increasing capability of existing suppliers, increasing capacity where needed, and qualifying vendors in capacity challenged market spaces. FY20 also reflects increased Advance Procurement for GFE Ordnance (the Strategic Weapon System shipboard equipment required for ship construction) and GFE Electronics to meet construction Required In Yard (RIY) dates and achieve EOQ savings, as well as support meeting critical prototype testing schedules.

EXECUTION OF FUNDS: In accordance with 10 USC Code 2218a appropriated funds in this line item are transferred and executed out of the National Sea-Based Deterrence Fund.

Footnotes:

(1) PLANS: COLUMBIA Class Lead Design Yard and program office support for the detail design for the Common Missile Compartment, Strategic Weapons System, Propulsion Plant, and Rest of Ship. The Program is targeting 83% design completion for the entire ship at construction start (October 2020). This design maturity target is necessary to achieve the aggressive 7 year lead ship construction time, which is required to support Strategic Deterrent mission requirements - there is no margin to this first patrol date. Detail design activities also support critical engineering analysis and risk reduction efforts. This line reflects adjustments made based on the award of the Integrated Product and Process Development (IPPD) contract. FY18 Plans increased since the PB19 submission due to the PB2018 Congressional add for increased Naval Foundry and Propeller Center (NFPC) External Power Upgrade requirements; this restores $14M of FY2017 Plans funds reassigned for emergent NFPC requirements to maintain schedule for critical path COLUMBIA Class propulsor prototype manufacturing demonstrations. FY19 Plans decreased from the PB19 submission due to the FY19 Congressional reduction. FY20 Plans increased to restore prior year funding to support meeting critical prototype testing schedules.

(2) SUPPLIER DEVELOPMENT: Since the PB2019 Submission, COLUMBIA Class, via Congressional direction, is targeting Supplier Development to de-risk construction schedules, strengthen submarine industrial base health, ensure on-time delivery of quality components and increase sub-vendors' ability to accept shipbuilder outsourced work. These funds execute supplier improvement and facilitization actions to increase capability of existing suppliers, increase capacity where needed, and qualify new suppliers in market spaces with capacity challenges. Initiatives include developing alternate sources for high-risk suppliers, developing sources for complex parts traditionally built at the shipbuilders that have been identified for strategic outsourcing, performing process and facility improvements with existing sources, and qualifying existing sources for more stringent requirements. Investment in the sub-vendor supplier base is required to promote facilities investment and vendor qualification to ensure adequate industrial capacity, and reduce COLUMBIA Class construction schedule risk.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
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(3) SHIPYARD LLTM: Funding is required to support long lead time shipbuilder procured material (for example the Weapons Handling, Air Conditioning Unit, Diesel Generator Set, and Reverse Osmosis Unit). These and other components are required early in the construction phase to meet the delivery schedule. Since the PB19 submission, funds for SSBN827 LLTM shifted to EOQ in support of Multi-Program Procurement and funds for SSBN826-828 shifted to Continuous Production of Shipyard Manufactured Items to mitigate construction risk and strengthen the submarine industrial base. SSBN826 LLTM AP increased from FY19 to continue initiatives to strengthen the sub-vendor industrial base through increased LLTM procurements.

(4) Continuous Missile Tube Production: COLUMBIA Class is executing Continuous Production of Missile Tubes to reduce schedule risk, improve manufacturing efficiencies, improve vendor learning, maintain critical production skills, and reduce costs by leveraging high-volume procurements. These benefits will increase schedule margin and reduce risk to follow ship deliveries, while also achieving cost reduction savings. Missile Tubes produced for SSBN 826 are funded through RDT&E,N Program Element 0603595N, Project Number 3220.

(5) ADVANCE CONSTRUCTION: Advance Construction (AC) efforts are to de-risk construction schedule and improve probability of on-time delivery. AC begins construction activities in key areas to gain schedule margin and reduce controlling path risks. AC key areas include the Bow (Sections 1A and 1B in Supermodule 1 that includes the forward Ballast Tanks and Hemi-head), Stern (Sections 9B and 9C in Supermodule 6 that includes the X-Stern and aft Ballast Tanks and Hemi-Head) and Common Missile Compartment (CMC) adjacent areas contained in Supermodule 2 that include the Missile Compartment Control Module (MCCM). AC will begin on structural fabrication areas that have sufficient design maturity and material availability to begin construction and some outfitting. These areas include MCCM Deck Module Fabrication, Mid-Span Tank complex and Foundation Fabrication, and Missile Compartment Forward Bulkhead and S2C Hull Cylinder Fabrication. AC efforts improve efficiency by smoothing workload at Quonset Point and capture efficiencies. FY20 continues construction efforts associated with the key areas listed above.

(6) EOQ and MPMP: Since the PB2019 Submission, COLUMBIA is implementing Multi-Program Procurement as authorized by US Code 10 2218a (NSBDF) subsection (f), to align shipbuilder procured material procurements with COLUMBIA Class funding with funds budgeted for VIRGINIA Class (LI 2013) and CVN (LI 2001) for common components and vendors. Appreciable risk mitigation is provided for COLUMBIA Class construction schedules through acceleration of material procurement, ensuring increased readiness to support construction need dates and through supplier base management and workload leveling. MPMP strengthens the industrial base to improve material availability and avoid construction delays due to late material. COLUMBIA Class Production Backup Units will procure a shipset of critical long lead time material to serve as rolling construction assets throughout COLUMBIA Class construction to be consumed in the event of unforeseen issues from late material or obsolescence to reduce schedule risk and avoid production disruptions from late material, and ensure Required In Yard (RIY) dates are met for compressed shipbuilding schedules. Material not consumed during construction will be consumed on the 12th hull if not used. PBUs also strengthen critical at-risk vendors in the sub-tier industrial base, reducing the risk of future obsolescence issues and production disruptions.

(7) SY CONTINUOUS PRODUCTION: Since the PB2019 Submission, COLUMBIA Class is implementing Continuous Production of selected Shipyard Manufactured Items (US Code 10 2218a subsection (i)) to reduce schedule risk, improve manufacturing efficiencies, improve learning, maintain critical production skills, and reduce costs by leveraging high-volume procurements. Continuous production of items with long lead time material requirements which are difficult to manufacture will ensure critical material is available to support construction schedules. These benefits will increase schedule margin and reduce risk to follow ship deliveries, while also achieving cost reduction savings through workforce level loading and minimizing the effects of large variations in demand and procurement efficiencies. Examples of Shipyard Manufactured Items include Spherical Air Flasks, Hull Valves, Logistics Escape Trunks, and Torpedo Tubes.

(8) Nuclear Propulsion Plant Equipment AP is required to fund long-lead time propulsion plant equipment, and ensure production capability that supports projected production quantities. To support the COLUMBIA Class' implementation of advanced modular construction methods to drive cost efficiency, reactor plant components must be delivered earlier in the construction process. The component delivery timeline is in line with that of the VIRGINIA Class submarines.

(9) Hull Mechanical & Engineering AP is required to align the Propulsor procurement and production schedule with COLUMBIA Class Advance Construction schedule acceleration.

(10) Ordnance SWS Shipboard Systems AP is required to fund Long Lead Time Material (LLTM) for the Strategic Weapon System (SWS) shipboard components to meet COLUMBIA (CLB) Class Government Furnished Equipment (GFE) Required-In-Yard (RIY) dates to support construction activities for CLB. AP is required to procure selected SWS Launcher and Fire Control Subsystem components including launch tube assemblies and construction support equipment, launch tube umbilical housings, launcher ejector group and vertical support group equipment, and Fire Control power and network equipment and sub-assemblies. The SWS shipboard components have a lead time of 12-48 months and are required by the shipbuilder early in the construction phase to meet the ship delivery schedule (beginning in September 2020 for SSBN 826 and April 2023 for SSBN 827). This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile. (Note: SWS components requiring 48 month lead time for SSBN 826 are procured through RDT&E,N Program Element 0603595N, Project Number 3220 in support of lead ship Missile Tube Module prototyping.)

Since the PB2019 submission, SWS GFE for SSBN 826 and SSBN 827 has been re-phased to support Advance Construction efforts and the shipbuilder's construction schedule for CLB. SSBN826 Ordnance AP also procures an additional SWS Test Instrumentation (TI) Radio Frequency (RF) Test Set to support the earlier RIY dates and maintain the construction schedule. SSBN 827 GFE RIY dates were accelerated up to 18 months based on construction schedule changes; realignment of GFE Advance Procurement funds to FY20-FY24 supports this delivery timeline.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 01 / 1	**P-1 Line Item Number / Title:** 1045 / COLUMBIA Class Submarine

A delay to these LLTM purchases will impact the U.S. Navy's ability to meet the shipbuilder's RIY dates for tactical hardware resulting in increased schedule risk to construction and ship delivery.

(11) Ordnance SWS Shipboard Systems EOQ funding (US Code 10 2218a subsection (f)) is required for large lot procurements of SWS shipboard components to mitigate significant obsolescence, requalification and vendor risk while ensuring SWS homogeneity and consistent SWS system performance across all COLUMBIA Class hulls. Examples include SWS Launcher Subsystem Detonator Power Assembly electronics components and SWS Fire Control Subsystem components such as network switch memory and flash devices, Navigation Timing Interface Module oscillators and display units. This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile.

(12) Ordnance SWS Shipboard Systems Continuous Production (US Code 10 2218a subsection (i)) of SWS Navigation Subsystem, Inertial Navigation Systems and Gyros is being implemented to procure critical components to ensure homogeneity and consistent SWS system performance across the Navigation unit builds, maintain critical production and fabrication skills, eliminate production re-starts and potential re-qualification risk while gaining manufacturing efficiencies and mitigating SWS Navigation Subsystem obsolescence across all COLUMBIA Class hulls during construction. These benefits will reduce schedule risk by ensuring on-time deliveries of SWS Navigation GFE to the shipbuilder, and result in cost savings outside of the FYDP. Follow-on procurements are outside the FYDP. This line does not fund any efforts related to the procurement of the TRIDENT II D5 Missile.

(13) Advance Procurement funding is required to support the Naval Foundry and Propeller Center External Power Upgrade. The Naval Foundry and Propeller Center requires upgrades to the private utility provider's infrastructure in order to provide an additional 16.5MW of electrical power to the facility. This requirement is driven by a required 85-ton furnace and six additional large machines required for concurrent COLUMBIA and VIRGINIA Class manufacturing. Initial upgrades are on track to be completed by October 2018 to support critical path COLUMBIA Class propulsor prototype manufacturing demonstrations in early FY19 through FY20. Completion of the remaining elements of the power upgrade will occur in the FY19 aligned to NFPC's phased power needs. FY18 funds increased since the PB19 submission due to the PB19 Congressional add for increased NFPC power upgrade requirements, which is also reflected in Plans to restore Plans funds reassigned for emergent NFPC requirements ($14M) in FY17. The total estimate for this effort is $46M, with $14M executed with FY17 funds.

(14) Electronics Equipment AP is required to fund the long-lead time material for the Command and Control System Module (CCSM). AP for the CCSM plays a critical role in early system installation and test in order to maintain the CCSM out of the critical path to ship delivery and minimize risk to ship construction. AP is required to procure selected electronics and associated pre-cable kits, cabling, connector plates and mechanical structures to be installed in this module in accordance with Shipyard Government Furnished Equipment (GFE) Delivery Dates. Pre-cable kits enable shipyard cable runs and platform interface verification prior to electronics installation. Mechanical structures establish footprint unique packaging for efficient electronics installation. This funding enables the COLUMBIA program to procure Long Lead Time Material (LLTM) and shipboard components for the SONAR system, which have lead times of up to 24 months and are required to be delivered to the shipbuilder beginning in May 2021 to meet COLUMBIA Class IPPD contract requirements. Since the PB19 submission, the request for FY20 increased funding for SSBN827 and SSBN826 to align procurements with VIRGINIA Class Block V procurements to achieve cost savings.

*Note: "When Required" is the number of months required before ship delivery.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 223		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	2	1	-	1	-	1	-	-	-	-	-	4
Gross/Weapon System Cost *($ in Millions)*	24,411.351	12,335.110	0.000	12,450.695	0.000	12,450.695	0.000	0.000	0.000	0.000	-	49,197.156
Less PY Advance Procurement *($ in Millions)*	7,020.160	2,233.142	-	-	-	-	-	-	-	-	-	9,253.302
Less Cost To Complete *($ in Millions)*	1,394.860	-	-	-	-	-	-	-	-	-	-	1,394.860
Less Subsequent Year Full Funding *($ in Millions)*	12,820.358	8,532.322	-	11,165.695	-	11,165.695	-	-	-	-	-	32,518.375
Net Procurement (P-1) *($ in Millions)*	3,175.973	1,569.646	0.000	1,285.000	0.000	1,285.000	0.000	0.000	0.000	0.000	-	6,030.619
Plus Subsequent Year Full Funding *($ in Millions)*	10,259.300	2,561.058	1,573.181	1,062.000	-	1,062.000	2,644.700	2,323.613	1,929.000	1,718.000	8,447.523	32,518.375
Full Funding TOA *($ in Millions)*	13,435.273	4,130.704	1,573.181	2,347.000	-	2,347.000	2,644.700	2,323.613	1,929.000	1,718.000	8,447.523	38,548.994
Plus CY Advance Procurement *($ in Millions)*	9,253.302	-	-	-	-	-	-	-	-	-	-	9,253.302
Plus Cost To Complete *($ in Millions)*	1,374.860	20.000	-	-	-	-	-	-	-	-	-	1,394.860
Total Obligation Authority *($ in Millions)*	**24,063.435**	**4,150.704**	**1,573.181**	**2,347.000**	**0.000**	**2,347.000**	**2,644.700**	**2,323.613**	**1,929.000**	**1,718.000**	**8,447.523**	**49,197.156**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	230.442	92.347	27.097	94.839	-	94.839	20.696	6.631	15.936	16.255	867.807	1,372.050
Total *($ in Millions)*	**24,293.877**	**4,243.051**	**1,600.278**	**2,441.839**	**-**	**2,441.839**	**2,665.396**	**2,330.244**	**1,944.936**	**1,734.255**	**9,315.330**	**50,569.206**
Gross/Weapon System Unit Cost *($ in Millions)*	12,205.676	12,335.110	-	12,450.695	-	12,450.695	-	-	-	-	-	12,299.289

Description:

To provide credible, sustainable, independent forward presence during peacetime without access to land bases; operate as the cornerstone of a joint and/or allied maritime expeditionary force in response to crisis; and carry the war to the enemy through joint multi-mission offensive operations.

The Department is using a two-phase acquisition strategy for constructing and delivery of CVN 79. The Department is employing this two-phase strategy to drive further affordability into the CVN 79 procurement cost and life cycle cost. Completion of the CVN 79 Detail Design and Construction contract will represent preliminary acceptance of CVN 79 from the shipbuilder in June 2022. At that time, CVN 79 will be placed in commission and will have full propulsion, safe navigation, and limited aircraft launch and recovery capability. After this acceptance, the Department will conduct a follow-on Phase II availability which will complete installation of the remaining systems. This Phase II will conclude by September 2024 and upon final acceptance of the ship, delivery of CVN 79 is projected to occur in September 2024.

The FORD Class acquisition strategy has been updated to reflect a two-ship buy for CVN 80 and CVN 81. The benefits of a two-ship buy include level loading of the shipbuilder trades and shops, optimal use of facilities, economic material and equipment procurements, and "design-once, build twice" strategy. These benefits translate into reduced shipbuilder production and engineering hours and lower shipbuilder and GFE material procurement costs. The two-ship buy is a contracting strategy the Navy has previously used effectively in the 1980s to procure NIMITZ Class carriers and achieved significant acquisition cost savings compared to contracting for the ships individually. The CVN 80 and CVN 81 two-ship buy DD&C contract award is planned for January 2019 with delivery of CVN 80 in March of 2028 and CVN 81 in February of 2032.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: 223		

Characteristics:

	-
Length Overall	1092 ft
Beam	134 ft
Displacement	97,337 TONS
Draft	38.7 ft

Systems:

Electronics

-SHIP SELF DEFENSE SYSTEM (SSDS)

Ordnance

-ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS)
-ENTERPRISE AIR SURVEILLANCE RADAR (EASR)
-ADVANCED ARRESTING GEAR (AAG)

Production Status:	CVN 79	CVN 80	CVN 81
Contract Award Date	Jun 2015	Jan 2019	Jan 2019
Months to Completion			
a) Award to Delivery	111 months	110 months	157 months
b) Construction Start to Delivery	163 months	110 months	157 months
Delivery Date	Sep 2024	Mar 2028	Feb 2032
Completion Of Fitting Out	Nov 2024	May 2028	Apr 2032
Obligation Work Limit Date	Oct 2025	Apr 2029	Mar 2033

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Apr 2004	N/A		
Issue Date for TLS	Sep 2006	N/A		
Preliminary Design	Jan 2003	Jul 2008		
Contract Design	May 2004	Apr 2008		
Detail Design	Jan 2004	Sep 2009		
Request for Proposals	Jul 2007	Oct 2007		
Design Agent	Huntington Ingalls Industries			

Classification of Cost Estimate: CLASS C BUDGET ESTIMATE

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Cost Categories (†) indicates the presence of a P-8a	**FY 2013**		**FY 2018**		**FY 2020**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	1	880.078	1	433.200	1	-
Basic Construction/Conversion		6,871.167		7,776.106		8,110.885
Change Orders		183.945		193.902		152.000
Electronics (†)		237.556		255.943		242.600
Propulsion Equipment		2,034.582		2,524.461		2,887.110
Hull, Mechanical, and Electrical (HM&E) (†)		29.104		26.600		13.600
Ordnance (†)		1,011.627		1,043.798		1,003.000
Other Cost		79.298		81.100		41.500
Total Ship Estimate		**11,327.357**		**12,335.110**		**12,450.695**
Less Advance Procurement FY 2007		52.750		-		-
Less Advance Procurement FY 2008		123.530		-		-
Less Advance Procurement FY 2009		1,210.561		-		-
Less Advance Procurement FY 2010		482.938		-		-
Less Advance Procurement FY 2011		902.473		-		-
Less Advance Procurement FY 2012		554.798		-		-
Less Advance Procurement FY 2016		-		862.358		-
Less Advance Procurement FY 2017		-		1,370.784		-
Less Subsequent Full Funding FY 2014		917.553		-		-
Less Subsequent Full Funding FY 2015		1,219.417		-		-
Less Subsequent Full Funding FY 2016		1,569.543		-		-
Less Subsequent Full Funding FY 2017		1,241.783		-		-
Less Subsequent Full Funding FY 2018		2,561.058		-		-
Less Subsequent Full Funding FY 2019		-		955.181		618.000
Less Subsequent Full Funding FY 2020		-		1,062.000		-
Less Subsequent Full Funding FY 2021		-		1,079.700		1,565.000
Less Subsequent Full Funding FY 2022		-		1,016.613		1,307.000
Less Subsequent Full Funding FY 2023		-		1,169.000		760.000
Less Subsequent Full Funding FY 2024		-		1,051.000		667.000
Less Subsequent Full Funding FY 2025		-		2,198.828		696.000
Less Subsequent Full Funding FY 2026		-		-		5,552.695
Net P-1 Funding		**490.953**		**1,569.646**		**1,285.000**

Remarks:
The Less Subsequent Full Funding FY 2026 field shows the funds requested to complete CVN 81. This includes resources beyond FY 2026.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2001 / Carrier Replacement Program		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
CVN 79	Huntington Ingalls Industries, Newport News Shipbuilding	2013	Jun 2015	Feb 2011	Sep 2024
CVN 80	Huntington Ingalls Industries, Newport News Shipbuilding	2018	Jan 2019	Jan 2019	Mar 2028
CVN 81	Huntington Ingalls Industries, Newport News Shipbuilding	2020	Jan 2019	Jan 2019	Feb 2032

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Electronics	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
CONSOLIDATED AFLOAT NETWORK AND ENTERPRISE SERVICES (CANES)	1	14.755	1	16.053	1	15.951
AN/USG-2, COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	1	5.838	1	6.110	1	6.071
DIGITAL MODULAR RADIO (DMR) ULTRA HIGH FREQUENCY/ VERY HIGH FREQUENCY LINE OF SIGHT (EHF/VHF LOS) SAT	1	9.523	1	10.904	1	10.835
AN/UPX-29(V), INTERROGATOR FRIEND OR FOE (IFF) W/MK XII	1	6.351	1	6.478	1	6.438
SPN-46, AUTOMATIC CARRIER LANDING SYSTEM	1	9.411	1	9.722	1	9.661
SHIP SELF DEFENSE SYSTEM (SSDS)	1	30.656	1	32.306	1	29.699
AN/TPX-42A(V)14, CARRIER AIR TRAFFIC CONTROL CENTER - DIRECT ALTITUDE AND IDENTIFY READOUT (CATCC-DAIR)	1	6.009	1	6.353	1	6.219
NAVY MULTI-BAND TERMINAL (NMT)	1	5.790	1	6.299	1	6.259
AN/SLQ-32(V)6, SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	1	10.518	1	10.555	1	10.488
AN/SRQ-6/MCS-21, SHIPS SIGNAL EXPLOITATION EQUIPMENT (SSEE)	1	7.559	1	7.765	1	7.716
AN/SRC-61 (V)X HFDAG	1	5.959	1	6.059	1	6.021
P-35 Items Subtotal		**112.369**		**118.604**		**115.358**
Major Items						
AN/USQ-155(V)1 TACTICAL VARIANT SWITCH	1	2.330	1	2.743	1	2.725
INFORMATION ASSURANCE (IA)		1.875		2.031		2.018
AN/URC-141X(V), MULTI-FUNCTION INFORMATION DISTRIBUTION SYSTEM (MIDS)-ON SHIP (MOS)	1	1.540	1	1.586	1	1.576
AN/SLQ-25C DUAL, SURFACE SHIP TORPEDO DEFENSE SYSTEM, NIXIE	1	5.215	1	5.243	1	4.627
SHIPBOARD AIR TRAFFIC CONTROL COMMUNICATIONS (SATCC)	1	2.246	1	2.343	1	2.328
AN/WSN-7(V)3, RING LASER GYRO NAVIGATOR (RLGN)	1	2.569	1	3.121	1	3.102
DISTRIBUTED SYSTEMS DESIGN INTEGRATION SERVICES	1	17.615	1	19.181	1	19.037
C4I INTEGRATION & COORDINATION		7.990		10.119		7.114
DISTRIBUTED COMMON GROUND STATION - NAVY (DCGS-N)	1	2.174	1	2.319	1	2.304
AN/USQ-144K AUTOMATED DIGITAL NETWORK SYSTEM (ADNS)	1	1.209	1	1.315	1	1.307
AN/UYQ-86 COMMON DATA LINK MANAGEMENT SYSTEM (CDLMS) WITH NGC2P	1	1.758	1	1.816	1	1.805
OA-9277 ULTRA HIGH FREQUENCY (UHF) MULTICOUPLER	1	2.050	1	1.966	1	1.954

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Electronics	FY 2013 Qty (Each)	FY 2013 Total Cost ($ M)	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
ARC-210 CARRIER AIR TRAFFIC CONTROL CENTER (CATCC) - PRIFLY - LANDING SIGNAL OFFICER (LSO) SYSTEM	1	1.533	1	1.668	1	1.657
WARFARE SYSTEM INTEGRATION		22.849		24.858		19.995
COMMERCIAL BROADBAND SATELLITE PROGRAM, FORCE LEVEL VARANT (CBSP-FLV)	2	2.266	2	2.465	2	2.450
AN/SSN-6(V)X BLOCK 4, NAVIGATION SENSOR SYSTEM INTERFACE (NAVSSI)	1	2.534	1	2.757	1	3.208
INTEGRATED STRIKE PLANNING & EXECUTION SYSTEMS (ISP&E)	1	8.222	1	8.246	1	8.194
AN/USQ-123(V), COMMUNICATIONS DATA LINK-SYSTEM (CDL-S)	1	2.388	1	2.480	1	2.464
AN/SPN-41 (V), INSTRUMENT LANDING SYSTEM (ILS)	1	3.870	1	3.897	1	3.873
SHIP SIGNAL EXPLOITATION SPACE (SSES/SI) COMMUNICATIONS	1	3.943	1	4.193	1	4.044
TURNKEY RADIO COMMUNICATIONS SYSTEM (RCS)	1	13.681	1	14.884	1	14.789
AN/USQ-T46X(V)X, BATTLE FORCE TACTICAL TRAINING SYSTEM (BFTT)	1	2.547	1	2.733	1	1.829
Major Items Subtotal		**112.404**		**121.964**		**112.400**
Other Cost Elements						
Other ELECTRONICS		12.783		15.375		14.842
Other Cost Elements Subtotal		**12.783**		**15.375**		**14.842**
Total Electronics		**237.556**		**255.943**		**242.600**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Hull, Mechanical, and Electrical (HM&E)	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Items						
HM&E ENGINEERING SERVICES		24.009		20.628		7.666
LIFE RAFTS		1.589		1.900		1.888
SUPSHIP MATERIAL AND GFE		0.780		0.620		0.616
TRUCKS (FORKLIFTS)		0.747		0.825		0.820
Major Items Subtotal		**27.125**		**23.973**		**10.990**
Other Cost Elements						
Other HM&E		1.979		2.627		2.610
Other Cost Elements Subtotal		**1.979**		**2.627**		**2.610**
Total Hull, Mechanical, and Electrical (HM&E)		**29.104**		**26.600**		**13.600**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program

Ordnance	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS)	1	601.363	1	607.873	1	593.314
ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	1	67.893	1	79.000	1	78.956
ADVANCED ARRESTING GEAR (AAG)	1	232.310	1	251.261	1	229.279
PHALANX BLOCK 1B MK 15 MOD 21 & 22, CLOSE - IN WEAPONS SYSTEM (CIWS)	3	20.583	3	20.959	3	19.286
AN/SQQ-34, CARRIER-TACTICAL SUPPORT CENTER (CV-TSC)	1	4.354	1	4.456	1	4.100
MK29 MOD 5, GUIDED MISSILE LAUNCHING SYSTEM (GMLS)	2	11.597	2	11.995	2	11.919
AVIATION DATA MANAGEMENT AND CONTROL SYSTEM (ADMACS)	1	7.436	1	8.828	1	8.772
MK 49, MOD 3 ROLLING AIRFRAME MISSILE (RAM)	2	16.059	2	16.849	2	15.788
AN/SPQ-9B, ANTI-SHIP MISSILE DEFENSE (ASMD) SURFACE SURVEILLANCE AND TRACKING RADAR	1	12.237	1	13.726	1	13.718
MK-9 TARGET ILLUMINATOR	4	12.584	4	12.661	4	12.828
P-35 Items Subtotal		**986.416**		**1,027.608**		**987.960**
Major Items						
LANDING SIGNAL OFFICER DISPLAY SYSTEM (LSODS)	1	1.927	1	2.112	1	2.098
MORIAH BLOCK 2	1	1.365	1	1.499	1	1.490
LONG RANGE LINEUP SYSTEM (LRLS)	1	0.926	1	0.966	1	0.960
IMPROVED FRESNEL LENS OPTICAL LANDING SYSTEM (IFLOLS)	1	2.073	1	2.272	1	2.257
INTEGRATED LAUNCH AND RECOVERY TELEVISION SYSTEM (ILARTS)	1	4.685	1	5.544	1	5.509
Major Items Subtotal		**10.976**		**12.393**		**12.314**
Other Cost Elements						
DUAL BAND RADAR (DBR) (SPY-3 AND VOLUME SEARCH RADAR (VSR))		10.948		-		-
Other ORDNANCE		3.287		3.797		2.726
Other Cost Elements Subtotal		**14.235**		**3.797**		**2.726**
Total Ordnance		**1,011.627**		**1,043.798**		**1,003.000**

Remarks:
The Enterprise Air Surveillance Radar (EASR) is intended to replace Dual Band Radar (DBR) on CVN 79, CVN 80, and CVN 81. The $10,948K cost on the CVN 79 represents a sunk cost paid for overruns associated with receiving the VSR from the DDG 1000 program and was originally planned for installation on CVN 79.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: CONSOLIDATED AFLOAT NETWORK AND ENTERPRISE SERVICES (CANES)	**PARM Code:** PMW 750

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	10.173	1	11.068	1	10.998
Spares		0.436		0.474		0.471
System Engineering		2.174		2.365		2.350
Technical Engineering Services		0.250		0.272		0.270
Other Costs		1.722		1.874		1.862
Total	**1**	**14.755**	**1**	**16.053**	**1**	**15.951**

Description:

CANES will provide the Navy tactical/non-tactical information environment and infrastructure necessary to enable hosting, extended services reach-back and reach-forward, and relay functions. These capabilities will support real time and non-real time tactical/non-tactical edge connected, connectionless, and ad-hoc voice, video and data information exchange requirements. CANES is the technology replacement for the following existing afloat networks: Combined Enterprise Regional Information Exchange System-Maritime (CENTRIXS-M), limited shipboard Internal Voice (IC), Integrated Shipboard Networking System (ISNS), Sensitive Compartmented Information (SCI) Networks, to include the Top Secret enclave, and Video Information eXchange System (VIXS). CANES will incrementally collapse Unclassified, Secret, Secret-Releasable, and SCI enclaves. CANES Increment 1 is the current POR for CVN 78.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	TBD	TBD	Oct 2021		1	10.173
FY 2018	CVN 80	TBD	TBD	Apr 2025		1	11.068
FY 2020	CVN 81	TBD	TBD	Mar 2029		1	10.998

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	23	12	Oct 2021
FY 2018	CVN 80	Mar 2028	23	12	Apr 2025
FY 2020	CVN 81	Feb 2032	23	12	Mar 2029

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/USG-2, COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	**PARM Code:** PEO IWS 6.0

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	2.750	1	2.750	1	2.733
Spares		0.432		0.470		0.467
System Engineering		2.017		2.195		2.181
Technical Engineering Services		0.181		0.197		0.196
Other Costs		0.458		0.498		0.494
Total	**1**	**5.838**	**1**	**6.110**	**1**	**6.071**

Description:

CEC significantly improves battle force air and missile defense capabilities by coordinating battle force air defense sensors into a single, near real-time, composite track picture capable of fire control quality. CEC is a sensor netting system which distributes sensor data from each CEC equipped ship, aircraft, and/or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate grid locking between CUs. Each CU independently employs high capacity parallel processing and advanced algorithms to combine all distributed sensor data into a high quality track picture that is the same for all CUs. CEC data is presented as a superset of the best sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	RAYTHEON	TBD	Aug 2021		1	2.750
FY 2018	CVN 80	TBD	TBD	Oct 2023		1	2.750
FY 2020	CVN 81	TBD	TBD	Sep 2027		1	2.733

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	35	18	Oct 2023
FY 2020	CVN 81	Feb 2032	35	18	Sep 2027

Competition/Second Source Initiatives:

N/A

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: DIGITAL MODULAR RADIO (DMR) ULTRA HIGH FREQUENCY/VERY HIGH FREQUENCY LINE OF SIGHT (EHF/VHF LOS) SAT	**PARM Code:** PMW 750

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	8.294	1	9.187	1	9.129
Spares		0.050		0.055		0.055
System Engineering		0.490		0.643		0.639
Technical Engineering Services		0.369		0.565		0.561
Other Costs		0.252		0.380		0.378
Ancillary Equipment		0.068		0.074		0.073
Total	**1**	**9.523**	**1**	**10.904**	**1**	**10.835**

Description:

DMR-VHF/UHF LOS/SATCOM is an open architecture system that allows transmission and reception of UHF and VHF RF signals. The DMR replaces many legacy systems, including some crypto, Line Of Sight (LOS) and Satellite Communications (SATCOM) components.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	GENERAL DYNAMICS	C/FFP	Sep 2014		1	8.294
FY 2018	CVN 80	TBD	TBD	Oct 2023		1	9.187
FY 2020	CVN 81	TBD	TBD	Sep 2027		1	9.129

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	35	18	Apr 2020
FY 2018	CVN 80	Mar 2028	35	18	Oct 2023
FY 2020	CVN 81	Feb 2032	35	18	Sep 2027

Competition/Second Source Initiatives:

None

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/UPX-29(V), INTERROGATOR FRIEND OR FOE (IFF) W/MK XII	**PARM Code:** PMA 213

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	5.026	1	5.026	1	4.994
Ancillary Equipment		0.094		0.102		0.101
Spares		0.112		0.122		0.121
System Engineering		0.570		0.620		0.616
Technical Engineering Services		0.139		0.151		0.150
Other Costs		0.410		0.457		0.456
Total	**1**	**6.351**	**1**	**6.478**	**1**	**6.438**

Description:

IFF is an approved and fully supported centralized Mark XII Interrogator system. It uses one receiver transmitter that synchronizes video with up to four radar sweeps. It supplies synthetic video (symbology) to, and accepts requests from, as many as 22 remote locations. It provides digital target reporting to the combat systems/weapon systems computer via full scan, sectored, and/or pop-up interrogations. It provides instantaneous target reporting at requested range and azimuth through the use of an electronically-steered Antenna Group OE-120/UPX or OE-120A/UPX. It provides electronically evaluated Mode 4 target reporting directly to operators and over the combat systems/weapon system computer interface. It provides full redundancy so identification capabilities are retained in case of main processor, main antenna, or main receiver/transmitter failure.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	BAE SYSTEMS	C/FFP	May 2016		1	5.026
FY 2018	CVN 80	NOTHROP GRUMMAN-BAE SYSTEMS	SS/FFP	Mar 2023		1	5.026
FY 2020	CVN 81	NOTHROP GRUMMAN-BAE SYSTEMS	SS/FFP	Jan 2027		1	4.994

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	36	24	Mar 2023
FY 2020	CVN 81	Feb 2032	37	24	Jan 2027

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: SPN-46, AUTOMATIC CARRIER LANDING SYSTEM	**PARM Code:** PMA 213

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	5.870	1	5.870	1	5.833
System Engineering		1.342		1.460		1.451
Technical Engineering Services		0.312		0.340		0.338
Other Costs		1.887		2.052		2.039
Total	**1**	**9.411**	**1**	**9.722**	**1**	**9.661**

Description:

AN/SPN-46 (V)3 provides Precision Approach Landing System (PALS) used for non-clear weather aircraft landings on board carriers.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	NAWCAD	Various	Feb 2021		1	5.870
FY 2018	CVN 80	NAWCAD	Various	Sep 2023		1	5.870
FY 2020	CVN 81	NAWCAD	Various	Jul 2027		1	5.833

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	30	24	Sep 2023
FY 2020	CVN 81	Feb 2032	31	24	Jul 2027

Competition/Second Source Initiatives:

None.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: SHIP SELF DEFENSE SYSTEM (SSDS)	**PARM Code:** PEO IWS 10.0

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	11.900	1	11.900	1	10.940
Technical Data and Documentation		1.430		1.556		1.430
Spares		0.592		0.644		0.592
System Engineering		6.863		7.467		6.865
Technical Engineering Services		0.728		0.792		0.728
Other Costs		9.143		9.947		9.144
Total	**1**	**30.656**	**1**	**32.306**	**1**	**29.699**

Description:

The SSDS MK 2, Mod (x) Common C2 system provides capabilities for multi-mission requirements including Ship Protection against air, surface, and subsurface threats using both own-ship and remote data (Joint Composite Track Number (JCTN) and Joint Data Network (JDN)) in support of the Anti-Air Warfare (AAW) Capstone requirements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	TBD	TBD	Feb 2021		1	11.900
FY 2018	CVN 80	TBD	TBD	Dec 2023		1	11.900
FY 2020	CVN 81	TBD	TBD	Nov 2027		1	10.940

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	27	24	Dec 2023
FY 2020	CVN 81	Feb 2032	27	24	Nov 2027

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/TPX-42A(V)14, CARRIER AIR TRAFFIC CONTROL CENTER - DIRECT ALTITUDE AND IDENTIFY READOUT (CATCC-DAIR)	**PARM Code:** PMA 213

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	3.244	1	3.244	1	3.176
Spares		0.267		0.291		0.285
System Engineering		1.865		2.029		1.986
Technical Engineering Services		0.056		0.061		0.060
Other Costs		0.577		0.728		0.712
Total	**1**	**6.009**	**1**	**6.353**	**1**	**6.219**

Description:

CATCC-DAIR is an automatic beacon and radar that when integrated with an air traffic control radar, provides numeric and symbolic displays of position, identity, and altitude of aircraft in the terminal airspace on an operator's Plane Position Indicator (PPI) display.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	TBD	TBD	Feb 2021		1	3.244
FY 2018	CVN 80	TBD	TBD	Mar 2023		1	3.244
FY 2020	CVN 81	TBD	TBD	Jan 2027		1	3.176

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	36	24	Mar 2023
FY 2020	CVN 81	Feb 2032	37	24	Jan 2027

Competition/Second Source Initiatives:

none

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition/skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: NAVY MULTI-BAND TERMINAL (NMT)	**PARM Code:** PMW 750

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	5.223	1	5.682	1	5.646
Ancillary Equipment		0.048		0.052		0.052
System Engineering		0.090		0.098		0.097
Technical Engineering Services		0.090		0.098		0.097
Other Costs		0.339		0.369		0.367
Total	**1**	**5.790**	**1**	**6.299**	**1**	**6.259**

Description:

The Advanced Extremely High Frequency (AEHF) Navy Multi-band Terminal (NMT) will be used to receive signals from the Advanced EHF satellites which is a follow-on to the DoD's highly secure, highly protected MILSTAR communications satellite system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	RAYTHEON	C/FFP	Jun 2014		1	5.223
FY 2018	CVN 80	TBD	TBD	Dec 2023		1	5.682
FY 2020	CVN 81	TBD	TBD	Nov 2027		1	5.646

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	33	18	Jun 2020
FY 2018	CVN 80	Mar 2028	33	18	Dec 2023
FY 2020	CVN 81	Feb 2032	33	18	Nov 2027

Competition/Second Source Initiatives:

None

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/SLQ-32(V)6, SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	**PARM Code:** PEO IWS 2E

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	10.100	1	10.100	1	10.036
Ancillary Equipment		0.315		0.343		0.341
System Engineering		0.091		0.099		0.098
Other Costs		0.012		0.013		0.013
Total	**1**	**10.518**	**1**	**10.555**	**1**	**10.488**

Description:

SEWIP Block 2 is a scalable Electronic Warfare enterprise suite to provide improved Electromagnetic Interference (EMI) mitigation and Combat System Interface capabilities to select new construction ships as well as upgrade current AN/SLQ-32(V)3 and (V)4 Electronic Warfare (EW) suites on existing ships. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles. SEWIP Block 2 focused on Electronic Support (ES) capability improvements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	10.100
FY 2018	CVN 80	TBD	TBD	Oct 2024		1	10.100
FY 2020	CVN 81	TBD	TBD	Sep 2028		1	10.036

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	23	18	Oct 2024
FY 2020	CVN 81	Feb 2032	23	18	Sep 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/SRQ-6/MCS-21, SHIPS SIGNAL EXPLOITATION EQUIPMENT (SSEE)	**PARM Code:** PMW 750

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	5.214	1	5.214	1	5.181
Ancillary Equipment		0.078		0.085		0.084
Spares		0.192		0.209		0.208
System Engineering		0.827		0.900		0.894
Technical Engineering Services		0.176		0.191		0.190
Other Costs		1.072		1.166		1.159
Total	**1**	**7.559**	**1**	**7.765**	**1**	**7.716**

Description:

SSEE provided for cryptological signal acquisition, recognition, analysis and geo-location. It replaces Maritime Cryptological System (MCS-21) which replaces the Battle Group Passive Horizon Extension System (BGPHES).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	5.214
FY 2018	CVN 80	TBD	TBD	Jul 2024		1	5.214
FY 2020	CVN 81	TBD	TBD	Jun 2028		1	5.181

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	26	18	Jul 2024
FY 2020	CVN 81	Feb 2032	26	18	Jun 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/SRC-61 (V)X HFDAG	**PARM Code:** PMW 170

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	4.816	1	4.816	1	4.786
Ancillary Equipment		0.048		0.052		0.052
Spares		0.010		0.011		0.011
System Engineering		0.199		0.216		0.215
Technical Engineering Services		0.484		0.527		0.524
Other Costs		0.402		0.437		0.433
Total	**1**	**5.959**	**1**	**6.059**	**1**	**6.021**

Description:

High Frequency (HF) Distributed Amplifier Group (DAG) is the Navy's Program of Record (POR) HF system and is the follow-on replacement of HF Radio Group (HFRG). HFDAG has a modular architecture and utilizes COTS equipment to the maximum extent possible. It provides Line Of Sight (LOS/Beyond Line of Sight (BLOS) voice and data transmission capabilities to USN Ships. The 16-channel CVN variant greatly improves capabilities from HFRG: (1) increases availability (Ao), (2) provides reprogrammable waveforms, (3) increases the number of waveforms available, (4) provides automatic link establishment (ALE).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	4.816
FY 2018	CVN 80	TBD	TBD	Nov 2023		1	4.816
FY 2020	CVN 81	TBD	TBD	Oct 2027		1	4.786

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	34	18	Nov 2023
FY 2020	CVN 81	Feb 2032	34	18	Oct 2027

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: ELECTROMAGNETIC AIRCRAFT LAUNCHING SYSTEM (EMALS)	**PARM Code:** PMA 251

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	552.719	1	542.163	1	557.474
Technical Data and Documentation		0.491		-		-
Spares		-		28.050		-
System Engineering		19.066		17.507		18.001
Technical Engineering Services		3.015		2.556		2.628
Other Costs		26.072		17.597		15.211
Total	**1**	**601.363**	**1**	**607.873**	**1**	**593.314**

Description:

EMALS is an advanced technology electrically generated launching system that uses a moving electromagnetic field to propel aircraft to launch speed. EMALS is made up of six primary sub-systems: prime power interface, energy storage, energy distribution, power conversion, launch motor, and launch control subsystem. Benefits over the current C13 steam catapults include reduced weight and volume, greater launching flexibility for future aircraft, improved control, and reduced manning workload requirements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	GENERAL ATOMICS	SS/FFP	May 2014	New	1	552.719
FY 2018	CVN 80	GENERAL ATOMICS	SS/FFP	Jul 2019	Option	1	542.163
FY 2020	CVN 81	GENERAL ATOMICS	SS/FFP	May 2023	Option	1	557.474

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	81	48	Dec 2013
FY 2018	CVN 80	Mar 2028	56	48	Jul 2019
FY 2020	CVN 81	Feb 2032	57	48	May 2023

Competition/Second Source Initiatives:

None

Remarks:

The CVN 80 Spares P-35 category includes $28.05M for CVN 78 Class Interim Spares.

Long Lead Time Materials Undefinitized Contract Action (UCA) awarded May 2014, Undefinitized Production UCA awarded June 2015 for CVN 79, Production UCA definitized December 2016 for CVN 79 with option for CVN 80. CVN 80 option exercised January 2017 EMALS and AAG bundled savings on single production contract for CVN 79 and CVN 80 are reflective of contract negotiations.

The Program is pursuing the addition of CVN 81 to the previously awarded 79/80 contract.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	**PARM Code:** PEO IWS 2.0

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	44.830	1	58.000	1	57.968
Ancillary Equipment		0.003		-		-
Spares		2.178		-		-
System Engineering		2.142		21.000		20.988
Technical Engineering Services		7.670		-		-
Other Costs		11.070		-		-
Total	**1**	**67.893**	**1**	**79.000**	**1**	**78.956**

Description:

The Enterprise Air Surveillance Radar (EASR) suite will be a modern long-range, three-dimensional (3D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The Enterprise Surveillance Suite (ESS), which includes EASR, is intended to replace the functions that Dual Band Radar (DBR) performed on CVN 78, but at a much lower cost.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	RAYTHEON	C/CPIF	Sep 2019		1	44.830
FY 2018	CVN 80	RAYTHEON	C/CPIF	Feb 2023		1	58.000
FY 2020	CVN 81	RAYTHEON	C/CPIF	Jan 2027		1	57.968

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	30	Aug 2020
FY 2018	CVN 80	Mar 2028	31	30	Feb 2023
FY 2020	CVN 81	Feb 2032	31	30	Jan 2027

Competition/Second Source Initiatives:

None

Remarks:

The hardware configuration for the CVN 79, CVN 80, and CVN 81 (non-rotating) is essentially three times that of a rotating configuration, which is currently planned for the big deck amphibious warfare ships. CVN 79, CVN 80, and CVN 81 will have three phased arrays mounted around the island, while the amphibious warfare ships will use one rotating array. Below deck equipment is also provided at a larger scale with the non-rotating variant of EASR.

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: ADVANCED ARRESTING GEAR (AAG)	**PARM Code:** PMA 251

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	206.406	1	199.219	1	204.845
Spares		-		32.497		1.827
System Engineering		8.054		4.471		4.597
Technical Engineering Services		6.904		4.771		4.906
Other Costs		10.946		10.303		13.104
Total	**1**	**232.310**	**1**	**251.261**	**1**	**229.279**

Description:

AAG provides an upgraded ability to recover all existing and projected aircraft carrier based air vehicles. The AAG system will replace the Mark 7 arresting gear system found on the NIMITZ class carriers and will be the aircraft recovery system for the CVN 79, CVN 80, and CVN 81. AAG consists of six primary systems; energy absorption subsystem, energy storage subsystem, dynamic control subsystem, thermal management subsystem, cross deck pendant, and the control subsystem.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	GENERAL ATOMICS	SS/FFP	May 2014	New	1	206.406
FY 2018	CVN 80	GENERAL ATOMICS	SS/FFP	Nov 2018	Option	1	199.219
FY 2020	CVN 81	GENERAL ATOMICS	SS/FFP	Sep 2022	Option	1	204.845

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	73	48	Aug 2014
FY 2018	CVN 80	Mar 2028	64	48	Nov 2018
FY 2020	CVN 81	Feb 2032	65	48	Sep 2022

Competition/Second Source Initiatives:

None

Remarks:

The CVN 80 Spares P-35 category includes $30.727M for CVN 78 Class Interim Spares and $1.770M for Initial Installation & Checkout Spares.

Long Lead Time Materials Undefinitized Contract Action (UCA) awarded May 2014, Undefinitized Production UCA awarded June 2015 for CVN 79, Production UCA definitized December 2016 for CVN 79 with option for CVN 80. EMALS and AAG bundled savings on single production contract for CVN 79 and CVN 80 are reflective of contract negotiations.

The Program is pursuing the addition of CVN 81 to the previously awarded 79/80 contract.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: PHALANX BLOCK 1B MK 15 MOD 21 & 22, CLOSE - IN WEAPONS SYSTEM (CIWS)	**PARM Code:** IWS 3B

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	3	16.297	3	16.297	3	14.996
Ancillary Equipment		0.231		0.251		0.231
Spares		0.278		0.302		0.278
System Engineering		1.857		2.020		1.858
Technical Engineering Services		0.628		0.683		0.629
Other Costs		1.292		1.406		1.294
Total	**3**	**20.583**	**3**	**20.959**	**3**	**19.286**

Description:

Phalanx is a high fire rate Close-In Weapon System (CIWS) that automatically acquires, tracks and destroys Anti-Ship cruise missiles, Helos, Aircraft, and all types of Surface threats. The installed version will have one MK-15, Mod 21 and two MK-15 Mod 22 CIWS systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	RAYTHEON	C/FFP	Apr 2021		3	5.432
FY 2018	CVN 80	RAYTHEON	C/FFP	Apr 2024		3	5.432
FY 2020	CVN 81	RAYTHEON	C/FFP	Mar 2028		3	4.999

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	22	Apr 2021
FY 2018	CVN 80	Mar 2028	25	22	Apr 2024
FY 2020	CVN 81	Feb 2032	25	22	Mar 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/SQQ-34, CARRIER-TACTICAL SUPPORT CENTER (CV-TSC)	**PARM Code:** PEO IWS 5E

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	3.199	1	3.199	1	3.621
Spares		0.100		0.109		0.245
System Engineering		0.350		0.381		0.029
Technical Engineering Services		0.250		0.272		0.035
Other Costs		0.455		0.495		0.170
Total	**1**	**4.354**	**1**	**4.456**	**1**	**4.100**

Description:

CV-TSC provides for carrier organic Anti-submarine Warfare (ASW), Mine Warfare (MIW), Surface Warfare (SUW), and other composite warfare area sensor data processing, tactical command and control, and organic/battle-group aircraft mission support. CV-TSC supports both ship self defense and embarked Destroyer Squadron (DESRON) missions. This system is Open Architecture Computing Environment (OACE), Joint Fires Network (JFN), and FORCEnet compliant, and includes redesign to maximize introduction of expected transformational technologies such as Common Processing System (CPS), Common Display System (CDS), sensor processing in support of the MH-60R helicopter, high speed bandwidth network, Excomm systems, net-centric warfare components, etc.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	TBD	TBD	Aug 2021		1	3.199
FY 2018	CVN 80	TBD	TBD	Feb 2024		1	3.199
FY 2020	CVN 81	TBD	TBD	Jan 2028		1	3.621

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	31	18	Feb 2024
FY 2020	CVN 81	Feb 2032	31	18	Jan 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: MK29 MOD 5, GUIDED MISSILE LAUNCHING SYSTEM (GMLS)	**PARM Code:** PEO IWS 3

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	7.071	2	7.071	2	7.026
Ancillary Equipment		0.400		0.435		0.432
Spares		0.922		1.003		0.997
System Engineering		0.750		0.816		0.811
Technical Engineering Services		0.710		0.773		0.768
Other Costs		1.744		1.897		1.885
Total	**2**	**11.597**	**2**	**11.995**	**2**	**11.919**

Description:

The MK 29 Mod 5 GMLS is a launcher only configuration integrated with the C2 system and will provide the CVN 79, CVN 80, and CVN 81 with a cost effective means of employing the initial Evolved Sea Sparrow Missile (ESSM) capability. This configuration consist of an open architecture launching system and does not include operator workstations; all workstations and operator interactions necessary for system operation including but not limited to power application to the GMLS and control and safety/status monitoring of loaded cells is assumed to exist at the combat system level.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	TBD	TBD	Sep 2020		2	3.536
FY 2018	CVN 80	TBD	TBD	Jul 2023		2	3.536
FY 2020	CVN 81	TBD	TBD	Jun 2027		2	3.513

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	29	Sep 2020
FY 2018	CVN 80	Mar 2028	27	29	Jul 2023
FY 2020	CVN 81	Feb 2032	27	29	Jun 2027

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AVIATION DATA MANAGEMENT AND CONTROL SYSTEM (ADMACS)	**PARM Code:** PMA 251

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	3.213	1	5.141	1	5.108
System Engineering		1.599		0.950		0.944
Technical Engineering Services		0.401		0.592		0.588
Other Costs		2.223		2.145		2.132
Total	**1**	**7.436**	**1**	**8.828**	**1**	**8.772**

Description:

ADMACS is a virtual, seamless, data sharing, knowledge based data system that provides interface for all aviation data systems. It is a tactical real-time information management system maintaining data integrity throughout the ship spaces that manage aircraft launch and recovery operations on board the carrier. ADMACS includes data from launch and recovery equipment, air traffic control, aviation maintenance, landing signaling officer, etc.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	BOWHEAD	C/FFP	Jul 2016	Option	1	3.213
FY 2018	CVN 80	TBD	TBD	Mar 2024		1	5.141
FY 2020	CVN 81	TBD	TBD	Jan 2028		1	5.108

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	31	12	Feb 2021
FY 2018	CVN 80	Mar 2028	36	12	Mar 2024
FY 2020	CVN 81	Feb 2032	37	12	Jan 2028

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: MK 49, MOD 3 ROLLING AIRFRAME MISSILE (RAM)	**PARM Code:** PEO IWS 3B

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	7.902	2	7.902	2	7.404
Ancillary Equipment		1.381		1.503		1.408
Technical Data and Documentation		0.035		0.038		0.036
Spares		0.140		0.152		0.142
System Engineering		2.190		2.383		2.233
Technical Engineering Services		0.380		0.413		0.387
Other Costs		4.031		4.458		4.178
Total	**2**	**16.059**	**2**	**16.849**	**2**	**15.788**

Description:

The MK 49 Mod 3 Rolling Airframe Missile (RAM) Weapon System is a lightweight, low cost, high power system for anti-ship missile defense against current and evolving threats. The Block 1 upgrade adds the capability of infrared, all-the-way missile guidance while maintaining the original dual-mode (RF/IR) capability. The helos, aircraft, and surface (HAS) upgrade enables the engagement of asymmetric threats. The CVN 78 class system provides refurbished MK 49 Guided Missile Launching Systems upgraded to MK 49 Mod 3.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	TBD	TBD	May 2021		2	3.951
FY 2018	CVN 80	TBD	TBD	May 2024		2	3.951
FY 2020	CVN 81	TBD	TBD	Apr 2028		2	3.702

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	21	May 2021
FY 2018	CVN 80	Mar 2028	25	21	May 2024
FY 2020	CVN 81	Feb 2032	25	21	Apr 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: AN/SPQ-9B, ANTI-SHIP MISSILE DEFENSE (ASMD) SURFACE SURVEILLANCE AND TRACKING RADAR	**PARM Code:** PEO IWS2B

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	6.486	1	7.469	1	7.576
Spares		0.450		0.490		0.497
System Engineering		0.980		1.066		1.081
Technical Engineering Services		0.602		0.655		0.664
Other Costs		3.719		4.046		3.900
Total	**1**	**12.237**	**1**	**13.726**	**1**	**13.718**

Description:

SPQ-9B is a multimode, x-band, narrow beam, pulse Doppler radar that detects and tracks sea-skimming missiles (ASMD) at the horizon in heavy clutter while simultaneously providing detection and tracking of surface targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2013	CVN 79	NGES	SS/FFP	Aug 2021		1	6.486
FY 2018	CVN 80	NGES	SS/FFP	Feb 2024		1	7.469
FY 2020	CVN 81	NGES	SS/FFP	Jan 2028		1	7.576

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	18	Aug 2021
FY 2018	CVN 80	Mar 2028	31	18	Feb 2024
FY 2020	CVN 81	Feb 2032	31	18	Jan 2028

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2001 / Carrier Replacement Program
Equipment Item: MK-9 TARGET ILLUMINATOR	**PARM Code:** IWS 3D

P-35 Category	FY 2013		FY 2018		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	4	11.706	4	11.706	4	12.037
Spares		0.878		0.955		0.791
Total	**4**	**12.584**	**4**	**12.661**	**4**	**12.828**

Description:

MK-9 is an X-Band Illuminator that provides weapon communication and missile illumination.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2013	CVN 79	RAYTHEON	C/FFP	Feb 2021		4	2.927
FY 2018	CVN 80	RAYTHEON	C/FFP	Aug 2023		4	2.927
FY 2020	CVN 81	RAYTHEON	C/FFP	Jul 2027		4	3.009

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2013	CVN 79	Sep 2024	19	24	Feb 2021
FY 2018	CVN 80	Mar 2028	31	24	Aug 2023
FY 2020	CVN 81	Feb 2032	31	24	Jul 2027

Competition/Second Source Initiatives:

None

Remarks:

This system is planned for installation during the CVN 79 Phase II availability. This availability enables use of competition / skilled installation teams, provides for installation of shipboard electronic systems closer to time of the ship's first deployment, and allows for concurrent installation of the combat system and DBR replacement radar suite.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A
Other Related Program Elements: 0604558N, 0604580N, 0204281N	
Line Item MDAP/MAIS Code: 516	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	26	2	2	3	-	3	2	2	2	2	7	48
Gross/Weapon System Cost *($ in Millions)*	67,761.050	5,532.718	6,500.178	9,274.442	0.000	9,274.442	6,161.822	6,494.076	6,631.890	6,803.748	32,919.000	148,078.924
Less PY Advance Procurement *($ in Millions)*	19,138.295	1,647.040	2,128.891	1,756.902	-	1,756.902	1,840.679	1,888.328	1,958.773	2,316.870	9,785.764	42,461.542
Less Cost To Complete *($ in Millions)*	1,844.685	-	-	-	-	-	-	-	-	-	-	1,844.685
Less Economic Order Quantity *($ in Millions)*	3,209.673	580.363	30.611	361.594	-	361.594	571.361	778.189	778.089	-	1,618.248	7,928.128
Net Procurement (P-1) *($ in Millions)*	43,568.397	3,305.315	4,340.676	7,155.946	0.000	7,155.946	3,749.782	3,827.559	3,895.028	4,486.878	21,514.988	95,844.569
Plus CY Advance Procurement *($ in Millions)*	22,161.629	1,920.596	1,810.941	1,887.588	-	1,887.588	1,945.862	2,140.779	2,185.743	2,021.506	6,386.898	42,461.542
Plus Cost To Complete *($ in Millions)*	1,844.685	-	-	-	-	-	-	-	-	-	-	1,844.685
Plus Economic Order Quantity *($ in Millions)*	3,790.036	225.000	985.460	881.964	-	881.964	427.420	-	-	544.014	1,074.234	7,928.128
Total Obligation Authority *($ in Millions)*	**71,364.747**	**5,450.911**	**7,137.077**	**9,925.498**	**0.000**	**9,925.498**	**6,123.064**	**5,968.338**	**6,080.771**	**7,052.398**	**28,976.120**	**148,078.924**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	1,165.538	69.280	104.146	165.567	-	165.567	168.072	166.266	171.690	175.125	2,193.675	4,379.359
Total *($ in Millions)*	**72,530.285**	**5,520.191**	**7,241.223**	**10,091.065**	**-**	**10,091.065**	**6,291.136**	**6,134.604**	**6,252.461**	**7,227.523**	**31,169.795**	**152,458.283**
Gross/Weapon System Unit Cost *($ in Millions)*	2,606.194	2,766.359	3,250.089	3,091.481	-	3,091.481	3,080.911	3,247.038	3,315.945	3,401.874	4,702.714	3,084.978

Description:

MISSION: To seek out and destroy enemy ships across a wide spectrum of tactical scenarios, working both independently and in concert with a battle group/other ships, providing Joint Commanders with early, accurate knowledge of the battlefield on which power may be projected from sea; covert striking power against targets ashore; the capability to establish covertly an expeditionary force on land; and the maritime strength to destroy enemy naval forces and interdict seaborne commerce.

NOTE: The program is currently negotiating the fourth MYP (Block V) contract that will include 10 SSNs (FY19-23) and will incorporate acoustic superiority modifications on all SSNs and VPM on seven SSNs with an option to award a third SSN in FY20. The third FY20 SSN was added during the PB2020 cycle without historical two-year and one-year Advance Procurement (AP) or Economic Order Quantity and thus will require three years to procure long lead time material (LLTM). As a result, the third FY20 SSN will begin construction in FY23. There is EOQ in FY18-21 and FY17-22 AP funding for LLTM for 10 SSNs and detail design (no AP/EOQ included for the third FY20 SSN).

NOTE: Block V SSNs will include significant enhancements. All Block V and future SSNs will include modifications similar to SOUTH DAKOTA Insertion Program (SDIP) efforts performed via RDT&E (PE 0604558N/Prj 1947) which will provide enhanced capability and improved performance. Virginia Payload Module (VPM) will be introduced on the second FY19, second and third FY20, and second FY21 hulls and subsequently fielded on all follow-on Virginia Class submarines. VPM is an 84-foot hull section with four additional payload tubes, each capable of carrying seven Tomahawk cruise missiles or various other payloads. VPM helps mitigate the loss of undersea strike capability with the retirement of the Service's four guided missile submarines (SSGNs) in the mid-2020s. These changes to the baseline require additional funding which is shown in more detail on subsequent pages of these exhibits.

NOTE: The $225M in FY18 EOQ is the FY18 Congressional Add for Industrial Base Expansion. These funds were distributed to the FY19 thru FY23 SSNs currently under negotiation for the Block V MYP construction contract for 10 SSNs.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604558N, 0604580N, 0204281N
Line Item MDAP/MAIS Code: 516		

Characteristics:	Baseline (B/L)	B/L w/ VPM(SSN803 & out)
Length Overall	377 feet	461 feet
Beam	34 feet	34 feet
Displacement	7830 tons	10174 tons
Draft	32 feet	31 feet

Production Status:	SSN 791	SSN 792	SSN 793	SSN 794	SSN 795	SSN 796	SSN 797
Contract Award Date	Dec 2008	Apr 2014	Apr 2014	Apr 2014	Apr 2014	Apr 2014	Apr 2014
Months to Completion							
a) Award to Delivery	126 months	66 months	73 months	77 months	84 months	88 months	93 months
b) Construction Start to Delivery	69 months	65 months	68 months	65 months	67 months	65 months	64 months
Delivery Date	Jun 2019	Oct 2019	May 2020	Sep 2020	Apr 2021	Aug 2021	Jan 2022
Completion Of Fitting Out	Jun 2019	Oct 2019	May 2020	Sep 2020	Apr 2021	Aug 2021	Jan 2022
Obligation Work Limit Date	May 2020	Sep 2020	Apr 2021	Aug 2021	Mar 2022	Jul 2022	Dec 2022

Production Status:	SSN 798	SSN 799	SSN 800	SSN 801	SSN 802 (1)	SSN 803	SSN 804
Contract Award Date	Apr 2014	Apr 2014	Apr 2014	Apr 2014	Apr 2019	Apr 2019	Apr 2019
Months to Completion							
a) Award to Delivery	98 months	104 months	108 months	113 months	69 months	79 months	81 months
b) Construction Start to Delivery	63 months	63 months	61 months	60 months	70 months	74 months	70 months
Delivery Date	Jun 2022	Dec 2022	Apr 2023	Sep 2023	Jan 2025	Nov 2025	Jan 2026
Completion Of Fitting Out	Jun 2022	Dec 2022	Apr 2023	Sep 2023	Jan 2025	Nov 2025	Jan 2026
Obligation Work Limit Date	May 2023	Nov 2023	Mar 2024	Aug 2024	Dec 2025	Oct 2026	Dec 2026

Production Status:	SSN 805	SSN 812
Contract Award Date	Apr 2019	Apr 2019
Months to Completion		
a) Award to Delivery	89 months	125 months
b) Construction Start to Delivery	72 months	78 months
Delivery Date	Sep 2026	Sep 2029
Completion Of Fitting Out	Sep 2026	Sep 2029
Obligation Work Limit Date	Aug 2027	Aug 2030

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Oct 1993	Sep 1995		
Contract Design	Oct 1994	Sep 1996		
Detail Design	Jan 1996	Jun 2004		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604558N, 0604580N, 0204281N
Line Item MDAP/MAIS Code: 516		

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Request for Proposals	N/A	N/A		
Design Agent	Electric Boat			

Classification of Cost Estimate: C

Justification:
FY20 funds three VIRGINIA Class Submarines (two with VIRGINIA Payload Module (VPM)) incorporating Acoustic Superiority and AP/EOQ for future Block V SSNs.

Footnotes:
(1) Current Block V delivery dates based on contract proposal and are subject to negotiations.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine	

Cost Categories (†) indicates the presence of a P-8a	**FY 2013**		**FY 2014**		**FY 2015**		**FY 2016**		**FY 2017**		**FY 2018**		**FY 2019**		**FY 2020**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	2	183.597	2	167.937	2	177.095	2	183.078	2	180.184	2	187.778	2	482.346	3	303.070
Basic Construction/Conversion		3,236.314		3,492.087		3,335.501		3,384.290		3,430.573		3,508.117		4,164.713		6,121.158
Change Orders		92.430		104.021		89.481		91.459		73.043		74.536		83.353		122.870
Electronics (†)		499.845		503.718		504.701		514.795		515.852		525.653		536.168		820.335
Technology Insertion		45.500		73.500		28.835		13.535		12.501		18.000		8.500		4.000
Propulsion Equipment		896.000		910.157		970.000		1,025.000		1,032.500		1,051.100		1,046.000		1,624.800
Hull, Mechanical, and Electrical (HM&E) (†)		98.876		105.248		106.822		109.920		110.190		112.394		119.028		184.350
Other Cost		51.124		52.658		53.233		54.777		54.058		55.140		60.070		93.859
Total Ship Estimate		**5,103.686**		**5,409.326**		**5,265.668**		**5,376.854**		**5,408.901**		**5,532.718**		**6,500.178**		**9,274.442**
Less Advance Procurement FY 2011		932.000		-		-		-		-		-		-		-
Less Advance Procurement FY 2012		473.115		988.246		-		-		-		-		-		-
Less Advance Procurement FY 2013		-		540.376		1,110.000		-		-		-		-		-
Less Advance Procurement FY 2014		-		-		467.014		1,145.000		-		-		-		-
Less Advance Procurement FY 2015		-		-		-		468.536		1,152.500		-		-		-
Less Advance Procurement FY 2016		-		-		-		-		470.788		1,171.100		-		-
Less Advance Procurement FY 2017		-		-		-		-		-		475.940		1,376.294		-
Less Advance Procurement FY 2018		-		-		-		-		-		-		752.597		1,167.999
Less Advance Procurement FY 2019		-		-		-		-		-		-		-		588.903
Less Cost to Complete FY 2014		227.000		-		-		-		-		-		-		-
Less EOQ FY 2009		162.128		-		-		-		-		-		-		-
Less EOQ FY 2010		200.269		-		-		-		-		-		-		-
Less EOQ FY 2011		122.920		-		-		-		-		-		-		-
Less EOQ FY 2014		-		-		158.400		219.380		194.909		169.909		-		-
Less EOQ FY 2015		-		-		-		197.568		251.603		231.618		-		-
Less EOQ FY 2016		-		-		-		-		151.116		178.836		-		-
Less EOQ FY 2018		-		-		-		-		-		-		30.611		115.229

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

Cost Categories (†) indicates the presence of a P-8a	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Less EOQ FY 2019		-		-		-		-		-		-		-		246.365
Net P-1 Funding		**2,986.254**		**3,880.704**		**3,530.254**		**3,346.370**		**3,187.985**		**3,305.315**		**4,340.676**		**7,155.946**

Remarks:
The Block V MYP contract (FY19-23) incorporates changes for Acoustic Superiority (AS) on all 10 SSNs and Virginia Payload Module (VPM) on seven (on the second FY19, FY20 and FY21 and following ships) with an option to award a third SSN in FY20.

The resulting request from FY19 to FY20 other than inflation is primarily driven by ship quantity increase from two to three SSNs. Plans reflects a decrease due to VPM Detail Design funded in FY19 ($291M). The AP and EOQ details are provided on the P10 exhibits.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2013 / Virginia Class Submarine		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
SSN 791	EB/HII-NNS	2013	Dec 2008	Sep 2013	Jun 2019
SSN 792	EB/HII-NNS	2014	Apr 2014	May 2014	Oct 2019
SSN 793	EB/HII-NNS	2014	Apr 2014	Sep 2014	May 2020
SSN 794	EB/HII-NNS	2015	Apr 2014	Apr 2015	Sep 2020
SSN 795	EB/HII-NNS	2015	Apr 2014	Sep 2015	Apr 2021
SSN 796	EB/HII-NNS	2016	Apr 2014	Mar 2016	Aug 2021
SSN 797	EB/HII-NNS	2016	Apr 2014	Sep 2016	Jan 2022
SSN 798	EB/HII-NNS	2017	Apr 2014	Mar 2017	Jun 2022
SSN 799	EB/HII-NNS	2017	Apr 2014	Sep 2017	Dec 2022
SSN 800	EB/HII-NNS	2018	Apr 2014	Mar 2018	Apr 2023
SSN 801	EB/HII-NNS	2018	Apr 2014	Sep 2018	Sep 2023
SSN 802 (1)	EB/HII-NNS	2019	Apr 2019	Mar 2019	Jan 2025
SSN 803	EB/HII-NNS	2019	Apr 2019	Sep 2019	Nov 2025
SSN 804	EB/HII-NNS	2020	Apr 2019	Mar 2020	Jan 2026
SSN 805	EB/HII-NNS	2020	Apr 2019	Sep 2020	Sep 2026
SSN 812	EB/HII-NNS	2020	Apr 2019	Mar 2023	Sep 2029
SSN 806	EB/HII-NNS	2021	Apr 2019	Mar 2021	Jan 2027
SSN 807	EB/HII-NNS	2021	Apr 2019	Sep 2021	Nov 2027
SSN 808	EB/HII-NNS	2022	Apr 2019	Mar 2022	Mar 2028
SSN 809	EB/HII-NNS	2022	Apr 2019	Sep 2022	Sep 2028
SSN 810	EB/HII-NNS	2023	Apr 2019	Jan 2023	Jan 2029
SSN 811	EB/HII-NNS	2023	Apr 2019	May 2023	May 2029
SSN 813	EB/HII-NNS	2024	Dec 2023	Mar 2024	Mar 2030
SSN 814	EB/HII-NNS	2024	Dec 2023	Sep 2024	Sep 2030

Footnotes:

(1) Current Block V delivery dates based on contract proposal and are subject to negotiations.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
Sonar, Combat Control & Architecture	2	215.816	2	220.132	3	336.803
Electronic Support Measures (ESM)	2	58.954	2	60.134	3	92.005
Photonics Masts	2	39.648	2	40.442	3	61.876
Universal Modular Mast (UMM)	2	22.612	2	23.064	3	35.289
Exterior Communications System (ECS) Recurring	2	53.488	2	54.558	3	83.474
P-35 Items Subtotal		**390.518**		**398.330**		**609.447**
Major Items						
System Level Activities	2	39.692	2	40.486	3	61.944
AN/BPS-16	2	6.086	2	6.208	3	9.498
Navigation	2	6.902	2	7.040	3	10.770
CWITT	2	44.888	2	45.786	3	70.047
Non-Propulsion Electronics System, Systems Engineering and Integration (NPES SE&I)	2	35.130	2	35.832	3	54.825
Major Items Subtotal		**132.698**		**135.352**		**207.084**
Other Cost Elements						
Misc Electronics	0	2.437	0	2.486	0	3.804
Other Cost Elements Subtotal		**2.437**		**2.486**		**3.804**
Total Electronics		**525.653**		**536.168**		**820.335**

Remarks:

The FY20 increase in Electronics is driven by additional requirements associated with the quantity increase from two to three SSNs.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
Propulsor	2	77.876	2	79.434	3	121.533
P-35 Items Subtotal		**77.876**		**79.434**		**121.533**
Major Items						
CSA MK2		3.298		3.364		5.148
Major Items Subtotal		**3.298**		**3.364**		**5.148**
Other Cost Elements						
HM&E Installation and testing		19.502		19.892		30.435
T&E		9.508		14.084		23.784
SUPSHIP responsible material		2.210		2.254		3.450
New Cost Element						
Other Cost Elements Subtotal		**31.220**		**36.230**		**57.669**
Total Hull, Mechanical, and Electrical (HM&E)		**112.394**		**119.028**		**184.350**

Remarks:

The FY20 increase in HM&E is primarily driven by additional requirements associated with the quantity increase from two to three SSNs. Additionally there is an increase to T&E requirements associated with the increase from one VPM in FY19 to two VPM beginning in FY20. A VPM ship adds (4) additional payload tubes compared to Block III/IV. The requirements for Peculiar Support Equipment (PSE) /Special Support Equipment (SSE) delivered with each ship increase from (2) All Up Round Simulators (AURS) and 10 All Up Round Ballast, Grade B (AURBb) to (6) AURS and (34) AURBb. This support equipment is required to be delivered with each ship in order to support testing for the VIRGINIA Payload Tubes when they are not loaded with ordnance.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Sonar, Combat Control & Architecture	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	175.984	2	179.504	3	274.643
Technical Engineering Services		3.151		3.214		4.917
Other Costs		36.681		37.414		57.243
Total	**2**	**215.816**	**2**	**220.132**	**3**	**336.803**

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. If all electronically interfaced subsystems are included the electronics suite is referred to as the VIRGINIA Class Non-propulsion Electronics System (NPES).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	SSN 800	Lockheed Martin	C/CPIF	Jan 2018	Option	2	48.892
FY 2019	SSN 802	Lockheed Martin	C/CPIF	Jan 2019	New	2	49.870
FY 2020	SSN 804	Lockheed Martin	C/CPIF	Jan 2020	Option	3	50.867

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	26	32	Jun 2018
FY 2019	SSN 802	Jan 2025	26	32	Mar 2020
FY 2020	SSN 804	Jan 2026	26	32	Mar 2021

Competition/Second Source Initiatives:

N/A

Remarks:

The Sonar, Combat Control & Architecture P-35 exhibit includes funding for multiple subsystems, contracts and field activities. However, the unit cost in the contract data section reflects only the major contract, Sonar acoustics processing.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Electronic Support Measures (ESM)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	44.712	2	45.606	3	69.779
Technical Engineering Services		2.504		2.554		3.907
Other Costs		11.738		11.974		18.319
Total	**2**	**58.954**	**2**	**60.134**	**3**	**92.005**

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Electronic Support Measures subsystem Prime Contractor Furnished Equipment, and associated Government Furnished Equipment; technical data documentation; spares; systems engineering; technical engineering services; computer program support; system test & evaluation; field engineering services; management support services; shipboard certification efforts; quality assurance and reliability/maintainability assurance; maintenance of technical data; and contractor support services efforts. This system provides the capability to process a variety of electromagnetic signal types over a wide frequency range in support of all applicable submarine mission areas.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	SSN 800	Lockheed Martin	C/FFP	Jan 2016	Option	2	22.356
FY 2019	SSN 802	Competitive	C/FFP	Dec 2019	New	2	22.803
FY 2020	SSN 804	Competitive	C/FFP	Dec 2020	Option	3	23.260

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	26	24	Feb 2019
FY 2019	SSN 802	Jan 2025	26	24	Nov 2020
FY 2020	SSN 804	Jan 2026	26	24	Nov 2021

Competition/Second Source Initiatives:

Multi-Functional Modular Mast (MMM) competitive contract was awarded to Lockheed Martin - Mission Systems and Training (LM-MST) in January 2016 for SSNs 794 thru 801. ESM AN/BLQ-10: Full and open competition planned for SSN 802 through SSN 812.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Photonics Masts	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	27.410	2	27.958	3	42.775
Technical Engineering Services		1.230		1.256		1.922
Other Costs		11.008		11.228		17.179
Total	**2**	**39.648**	**2**	**40.442**	**3**	**61.876**

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Photonics subsystem Prime Contractor Furnished Equipment; spares; systems engineering; technical engineering services; computer program support; field engineering services; management support services; shipboard certification; maintenance of technical data; and contractor support services efforts. This system consists of two outboard mast/antenna/camera assemblies and the associated inboard processing and display equipment. This system supports visual and infrared (IR) imaging, RF signal communications, early warning and contact direction finding capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	SSN 800	L-3 KEO	C/FFP	Apr 2015	Option	2	13.705
FY 2019	SSN 802	Competitive	C/FFP	Apr 2019	New	2	13.979
FY 2020	SSN 804	Competitive	C/FFP	Apr 2020	Option	3	14.258

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	26	24	Feb 2019
FY 2019	SSN 802	Jan 2025	26	24	Nov 2020
FY 2020	SSN 804	Jan 2026	26	24	Nov 2021

Competition/Second Source Initiatives:

Low Profile Photonics Mast (LPPM): Full and Open competition contract awarded in April 2015 for SSNs 794 thru 801. Includes common diploop/Electrical Hull Penetrator (EHP) plan as part of contract to maintain future mast flexibility and antenna assembly and ESM mast components. Type 20 Mast: Full and open competition planned for SSN 802 through SSN 812. Provides vastly increased capabilities and development flexibility for new mast sensors. Includes antennae assembly and ESM mast components.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Universal Modular Mast (UMM)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	16.852	2	17.189	3	26.301
Technical Engineering Services		2.795		2.851		4.362
Other Costs		2.965		3.024		4.626
Total	**2**	**22.612**	**2**	**23.064**	**3**	**35.289**

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. This P-35 covers the procurement requirements for the following: Modular Mast Prime Contractor Furnished Equipment; technical data documentation; spares; systems engineering; technical engineering services; management support services; shipboard certification; and maintenance of technical data efforts. This system consists of eight common masts for purposes of housing, raising and lowering antenna and other sensor units.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	SSN 800	L3-KEO	SS/FP	Apr 2018	Option	2	8.426
FY 2019	SSN 802	L3-KEO	SS/FP	Apr 2019	Option	2	8.595
FY 2020	SSN 804	L3-KEO	SS/FP	Apr 2020	Option	3	8.767

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	37	21	Jun 2018
FY 2019	SSN 802	Jan 2025	37	21	Mar 2020
FY 2020	SSN 804	Jan 2026	37	21	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Exterior Communications System (ECS) Recurring	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	35.879	2	36.597	3	55.994
Technical Engineering Services		6.083		6.204		9.492
Other Costs		11.526		11.757		17.988
Total	**2**	**53.488**	**2**	**54.558**	**3**	**83.474**

Description:

The VIRGINIA Class Command, Control, Communications and Intelligence (C3I) System is the electronics suite which will provide required operational and warfighting capability for the Navy's newest attack submarine. The C3I System includes 15 subsystems (23 if all electronically interfaced subsystems are included) integrated by an overarching Architecture Subsystem. Exterior Communications Systems (ECS) is an integration effort with multiple Government-Off-The-Shelf (GOTS) components providing the core ECS capability. The GOTS components of ECS will be provided using existing contracts. For the ECS integration effort, Stanley Associates (North Charleston, SC) is prime for fabrication and production. This P-35 covers the procurement requirements for the following: ECS GOTS equipment; fabrication/ production; systems engineering; system test & evaluation; training; data; technical engineering services; spares and repair parts; and program management. This system provides the capability for seamless, transparent, secure connectivity for information exchange between submarine users and the Global Command and Communications System (GCCS)

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	SSN 800	SAIC	C/IDIQ	May 2020	Option	2	17.940
FY 2019	SSN 802	Competitive	C/IDIQ	May 2021	New	2	18.299
FY 2020	SSN 804	Competitive	C/IDIQ	May 2022	Option	3	18.665

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	24	9	Jul 2020
FY 2019	SSN 802	Jan 2025	24	9	Apr 2022
FY 2020	SSN 804	Jan 2026	24	9	Apr 2023

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine
Equipment Item: Propulsor	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	67.356	2	68.704	3	105.116
TECH ENGINEERING SERVICES		10.520		10.730		16.417
Total	**2**	**77.876**	**2**	**79.434**	**3**	**121.533**

Description:

The propulsor consists of Ni-Al-bronze blades and a large steel and inconel fabrication piece. The purpose of the propulsor is to generate proper thrust to propel the ship at a rated speed within the approved limits of torque and shaft RPM, while at the same time meeting acoustic and structural requirements. This design is unique to the VIRGINIA Class. The propulsor consists of a large quantity of government supplied material and a contract for the fixed portion construction and assembly.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	SSN 800	BAE Systems	C/FFP	Apr 2016	Option	2	26.350
FY 2019	SSN 802	BAE Systems	C/FFP	Apr 2016	Option	2	26.888
FY 2020	SSN 804	BAE Systems	C/FFP	Apr 2016	Option	3	27.426

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	SSN 800	Apr 2023	35	30	Nov 2017
FY 2019	SSN 802	Jan 2025	40	30	Mar 2019
FY 2020	SSN 804	Jan 2026	40	30	Mar 2020

Competition/Second Source Initiatives:

N/A

Remarks:

The BAE Systems contract was awarded in April 2016 for LLTM for SSN 794-799 and Manufacturing and Delivery efforts for SSN 794-803. LLTM for SSN 800-803 to be definitized on a yearly basis. LLTM for SSN 804-813 being procured on a Basic Ordering Agreement (BOA) on a yearly basis with expected first award 2Q19. Manufacturing and Delivery for 804-813 to award on new contract 2Q20.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine	
First System (2020) Award Date:	**First System (2020) Completion Date:**	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
Advance Procurement									
Nuclear Propulsion Plant Equipment (1)	30-72	Various	1,047.000	1,083.600	1,122.000	1,161.000	1,202.000	1,244.000	1,287.479
Electronics Equipment (2)	37-43	Various	28.778	29.354	29.940	30.540	31.150	31.774	32.408
NON-Nuclear Propulsion Plant Equipment - Propulsor (3)	36	Various	43.962	44.840	45.738	46.653	47.586	48.538	49.508
Long Lead-Time CFE One Year AP (4)	24-42	Various	589.347	514.709	542.963	542.188	553.556	728.071	568.280
Long Lead-Time CFE Two Year AP (4)	24-42	Various	120.999	138.438	146.947	165.481	306.487	133.360	83.831
VPM Detail Design (5)	24-36	Various	90.510	-	0.000	-	-	-	-
Total: Advance Procurement			*1,920.596*	*1,810.941*	*1,887.588*	*1,945.862*	*2,140.779*	*2,185.743*	*2,021.506*
Economic Order of Quantity									
EOQ for FY19 SSNs (6)	-	Various	30.611	-	0.000	-	-	-	-
EOQ for FY20 SSNs	-	Various	115.229	246.365	0.000	-	-	-	-
EOQ for FY21 SSNs	-	Various	31.008	246.365	293.988	-	-	-	-
EOQ for FY22 SSNs	-	Various	24.126	246.365	293.988	213.710	-	-	-
EOQ for FY23 SSNs	-	Various	24.026	246.365	293.988	213.710	-	-	-
EOQ for FY25 SSNs	-	Various	-	-	0.000	-	-	-	272.007
EOQ for FY26 SSNs	-	Various	-	-	0.000	-	-	-	272.007
Total: Economic Order of Quantity			*225.000*	*985.460*	*881.964*	*427.420*	-	-	*544.014*
Total Advance Procurement/Obligation Authority			**2,145.596**	**2,796.401**	**2,769.552**	**2,373.282**	**2,140.779**	**2,185.743**	**2,565.520**

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

Cost Elements	FY 2020 Production Leadtime (Months)	When Required* (Months)	Unit Cost ($ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request ($ M)
Advance Procurement							
Nuclear Propulsion Plant Equipment (1)	30-72	Various	-	Oct 2018	-	2022	1,122.000
Electronics Equipment (2)	37-43	Various	-	Dec 2018	-	2021	29.940
NON-Nuclear Propulsion Plant Equipment - Propulsor (3)	36	Various	-	Dec 2018	-	2021	45.738
Long Lead-Time CFE One Year AP (4)	24-42	Various	-	Jan 2019	-	2021	542.963
Long Lead-Time CFE Two Year AP (4)	24-42	Various	-	Jan 2019	-	2022	146.947
Total: Advance Procurement							*1,887.588*
Economic Order of Quantity							
EOQ for FY19 SSNs (6)	-	Various	-		-		0.000
EOQ for FY20 SSNs	-	Various	-		-		0.000
EOQ for FY21 SSNs	-	Various	-		-		293.988
EOQ for FY22 SSNs	-	Various	-		-		293.988
EOQ for FY23 SSNs	-	Various	-		-		293.988
EOQ for FY25 SSNs	-	Various	-		-		0.000
EOQ for FY26 SSNs	-	Various	-		-		0.000
Total: Economic Order of Quantity							*881.964*
Total Advance Procurement/Obligation Authority							**2,769.552**

Description:

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:

(1) Nuclear Propulsion Plant Equipment AP is required to fund long-lead time propulsion plant equipment, which is the longest lead-time equipment required for construction of nuclear attack submarines, and ensure production capability that supports projected production quantities. To support the VIRGINIA Class' innovative and more efficient modular construction method, reactor plant components must be delivered earlier in the construction process than previous submarine classes. Under the new method, the VIRGINIA Class reactor plant is assembled and tested before being mounted and installed in the hull. Naval Reactors is in the midst of decreasing procurements for reactor plant GFE, primarily a result of fewer aircraft carrier and submarine refuelings. Between FY15 and FY21, production volume at the Program's reactor core vendor will decrease by ~33% or nearly 500,000 manhours and require allocation of overhead across fewer product lines, resulting in increased costs per ship set. This period of higher overhead allocation coincides with the manufacturing periods of the six planned equipment ship sets to be procured using the FY19-21 SCN AP. This burden is reflected in the estimated escalation rate used to derive the required AP funding in those years. Naval Reactors is actively managing and assessing the required reactor core manufacturing capabilities to identify overhead efficiencies and reduce costs.

(2) Electronics Equipment AP is required to fund the long-lead time material for the Command and Control System Module (CCSM). AP for the CCSM plays a critical role in early system installation and test in order to keep the CCSM out of the critical path to ship delivery and minimize risk to ship construction. AP is required to procure selected electronics and associated pre-cable kits, cabling, connector plates

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2013 / Virginia Class Submarine

and mechanical structures to be installed in this module in accordance with Shipyard Required in Yard Dates (RIYD). Pre-cable kits allow the shipyard to establish cable runs and checkout platform interfaces prior to electronics installation. Mechanical structures establish footprint unique packaging to allow electronics to install efficiently. Additionally, this 1 YR AP is for long lead items such as metal fabrication parts (mechanical structures, chassis, drawer slides, mounting hardware), power supplies and cable connectors, subcontract items (Aft Sonar Receive Unit), and acoustic hull sensors (iRoc Sensors, DT-574 LAB Hydrophone).

(3) Non-Nuclear Propulsion Plant Equipment Propulsor AP is required to satisfy in-yard need dates for ship delivery. Other prior year non-nuclear propulsion plant equipment has been negotiated as CFE in the Construction Contract.

(4) Long Lead-Time CFE AP is required to fund long lead time contractor furnished material including the Weapons Handling and Reactor Plant Modules and the Main Propulsion Unit (MPU)/Ship Service Turbine Generator (SSTG). Additionally VPM LLTM CFE in FY18 - FY24 required to support the increased material procurement (i.e. electrical, valves, flanges, fittings, pipe, fabricated parts, hardware, and tools, etc.) associated with the increased VPM workload and to maintain anticipated ship construction schedules is included. These and other components are required early in the construction phase to meet the delivery schedule. The one and two year CFE includes essential funding to support the Block V LLTM that is being negotiated into the MYP Construction Contract (not inflation driven due to VPM fluctuation and cadence of vendor base procurements) in combination with the EOQ profile to maximize cost savings and meet in yard need dates of materials.

(5) Virginia Payload Module (VPM) AP is required for Detail Design in FY18 for Block V.

(6) EOQ is for Economic Order Quantity for large lot procurements of shipbuilder material and major Government Furnished Equipment to achieve MYP savings. Examples of shipbuilder large lot procurements include items such as Electrical (cable, wire, fittings, switches, instrumentation, connectors, resistors, etc.); Valves, flanges and fittings, piping; Fabricated Parts (bearings, sound isolation mounts, pipe hanged assemblies, machined parts); Hardware and Tools (fasteners, marine fittings, locks, latches, small tools). Examples of GFE large lot procurements include items such as: Sonar - Large Aperture Bow (LAB) Arrays and associated bottles, Light Weight Wide Aperture Array (LWWAA) Receivers & electronic components (network servers, switches) ECS - High Data Rate (HDR) Antennas, Digital Modular Radios (DMRs) & associated power amplifiers, Navy Multiband Terminals (NMTs), and Multi-function Masts (MFMs) OE-538. ESM - Photonics ESM Performance Improvement (PEPI)-3 systems and Multifunctional Modular Masts (MMMs) Photonics Masts - outboard equipment only, such as Diploops along with complex electronic & mechanical components that are required to manufacture the Photonics masts. The $225M in FY18 EOQ is the FY18 Congressional Add for Industrial Base Expansion. These funds were distributed as shown to the FY19 thru FY23 SSNs currently under negotiation for the Block V MYP construction contract for 10 SSNs. This funding will support industrial base expansion by placing economic order quantities (EOQ) orders for all 10 Block V ships, targeted towards vendors common with COLUMBIA Class Submarines (CLBs) and FORD Class Carriers (CVNs), a year earlier than planned to allow for a more efficient ramp up. The $225M in EOQ funding will enable the Navy to send a demand signal to the industrial base for all of Block V, thereby allowing the vendor base to ramp up and plan their workload to deconflict and de-risk schedules across the nuclear shipbuilding enterprise. Moreover, this will help (1) support VCS production as CLB demand increases, (2) stabilize and expand the cross-program industrial base, and (3) lock-in out-year demand.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A
Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	6	-	-	1	-	1	-	-	-	-	1	8
Gross/Weapon System Cost *($ in Millions)*	22,717.771	0.000	0.000	5,640.212	0.000	5,640.212	0.000	0.000	0.000	0.000	6,672.672	35,030.655
Less PY Advance Procurement *($ in Millions)*	5,275.515	-	-	749.870	-	749.870	-	-	-	-	1,528.221	7,553.606
Less Cost To Complete *($ in Millions)*	180.598	-	-	-	-	-	-	-	-	-	-	180.598
Less Subsequent Year Full Funding *($ in Millions)*	10,092.768	-	-	3,760.627	-	3,760.627	-	-	-	-	2,378.658	16,232.053
Less Transfer *($ in Millions)*	128.131	-	-	-	-	-	-	-	-	-	-	128.131
Less Previously Appropriated OPN *($ in Millions)*	-	-	-	481.789	-	481.789	-	-	-	-	568.210	1,049.999
Net Procurement (P-1) *($ in Millions)*	7,040.759	0.000	0.000	647.926	0.000	647.926	0.000	0.000	0.000	0.000	2,197.583	9,886.268
Plus Subsequent Year Full Funding *($ in Millions)*	8,523.099	1,569.669	-	-	-	-	1,875.586	1,885.041	-	-	2,378.658	16,232.053
Full Funding TOA *($ in Millions)*	15,563.858	1,569.669	-	647.926	-	647.926	1,875.586	1,885.041	-	-	4,576.241	26,118.321
Plus CY Advance Procurement *($ in Millions)*	5,523.615	75.897	425.873	-	-	-	-	-	17.826	240.788	1,269.607	7,553.606
Plus Cost To Complete *($ in Millions)*	180.598	-	-	-	-	-	-	-	-	-	-	180.598
Plus Transfer *($ in Millions)*	128.131	-	-	-	-	-	-	-	-	-	-	128.131
Plus Previously Appropriated OPN *($ in Millions)*	1,049.999	-	-	-	-	-	-	-	-	-	-	1,049.999
Total Obligation Authority *($ in Millions)*	**22,446.201**	**1,645.566**	**425.873**	**647.926**	**0.000**	**647.926**	**1,875.586**	**1,885.041**	**17.826**	**240.788**	**5,845.848**	**35,030.655**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	102.914	7.701	20.048	31.597	-	31.597	41.490	26.829	20.819	24.074	69.621	345.093
Total *($ in Millions)*	**22,549.115**	**1,653.267**	**445.921**	**679.523**	**-**	**679.523**	**1,917.076**	**1,911.870**	**38.645**	**264.862**	**5,915.469**	**35,375.748**
Gross/Weapon System Unit Cost *($ in Millions)*	3,786.295	-	-	5,640.212	-	5,640.212	-	-	-	-	6,672.672	4,378.832

Description:

To support and operate aircraft to engage in attacks on targets afloat and ashore which threaten our use of the sea and to engage in sustained operations in support of other forces. The refueling of the reactors and repair and upgrade of the main propulsion equipment will provide for reliable operations during its remaining 23 plus years of ship life using only the normal maintenance cycle.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Characteristics:

	CVN 73
Length Overall	1092 ft
Beam	252 ft
Displacement	101,200 LT
Draft	39.96 ft

Systems:

Electronics

-C4ISR
-INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)
-SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E
-ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)
-AN/SPN-46 OVERHAUL/UPGRADE
-JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)
-AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)
-AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM
-AN/SPN-41 REFURBISHMENT
-AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR
-BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM
-AN/SPN-43C REFURBISHMENT
-AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE
-NAVAL STRIKE WARFARE PLANNING CENTER (NSWPC)
-AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET
-AN/TPX-42(V)15 UPGRADE
-JOINT STRIKE FIGHTER AUTONOMIC LOGISTICS INFORMATION SYSTEM (JSF-ALIS)
-MQ-25 - UNMANNED AIRCRAFT SYSTEM (UAS)
-AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM

Hull, Mechanical, and Electrical (HM&E)

-AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL
-FURNITURE (NON PROPULSION PLANT)
-LOW PRESSURE AIR PLANT (LPAP)
-AUTOMATIC VOLTAGE REGULATOR (AVR)
-VSA O2 GENERATOR
-PASSIVE COUNTER MEASURE SYSTEM (PCMS)
-COMBAT SYSTEMS SUPPORT CENTER (CSSC) RIPOUT/INSTALL
-CARRIER INTELLIGENCE CENTER (CVIC) RIPOUT/INSTALL
-AFT CREW MESS
-LAUNDRY DRYERS (SCD 3186)
-MEDICAL AND DENTAL SUITE
-NODE ROOM RIPOUT/INSTALL
-COMBI-OVENS
-ACE PLC CONTROL SYSTEM UPGRADE
-DECK EDGE DOOR UPGRADE

Ordnance

-AVIATION EQUIPMENT & SUPPORT
-NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)
-AN/SPS-48G - 3D AIR SEARCH RADAR
-AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT
-AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)
-ENTERPRISE AIR SURVEILLANCE RADAR (EASR)
-CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1
-SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2
-MK 38 MOD 3 GUN SYSTEM
-COMBAT DIRECTION CENTER (CDC)/FLAG RIPOUT/INSTALL
-AN/SPQ-9B - ANTI-SHIP CRUISE MISSILE DEFENSE RADAR
-MK 38 MOD 2 GUN SYSTEM
-AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER
-RAM GUIDED MISSILE LAUNCHING SYSTEM
-MK 53 DECOY LAUNCHING SYSTEM (DLS)

Production Status:	CVN 73	CVN 74
Contract Award Date	Aug 2017	Jan 2021
Months to Completion		
a) Award to Delivery	48 months	48 months
b) Construction Start to Delivery	48 months	48 months
Delivery Date	Aug 2021	Jan 2025
Completion Of Fitting Out	Oct 2021	Mar 2025
Obligation Work Limit Date	Sep 2022	Feb 2026

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Jan 2000	Feb 2000	Mar 2000	Apr 2000
Issue Date for TLS	Jan 2001	Feb 2001	Mar 2001	Apr 2001
Preliminary Design	Jan 2002	Feb 2002	N/A	N/A
Contract Design	Jan 2003	Feb 2003	N/A	N/A
Detail Design	Jan 2004	Feb 2004	N/A	Apr 2004
Request for Proposals	Jan 2005	Feb 2005	Mar 2005	N/A
Design Agent	[Design Agent]			

Classification of Cost Estimate: [cost estimate]

Justification:
FY 2020 changes the CVN 74 RCOH request of $647.926 million from the fifth year of advance procurement to the first year of full funding. There is no change in the amount of funding. The revised CVN 74 RCOH funding profile is four years of advance procurement from FY 2016 to FY 2019 and three years of full funding from FY 2020 to FY 2022, which is similar to CVN 73. Previously appropriated OPN represents reactor power units procured for CVN 74 and CVN 76. Funding is now included with the end cost per Section 1018 of the 2019 National Defense Authorization Act.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			**Date:** March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls		
Cost Categories (†) indicates the presence of a P-8a	**FY 2016**		**FY 2020**		
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	
Plan Costs	1	66.131	1	70.271	
Basic Construction/Conversion		3,813.413		4,144.579	
Electronics (†)		318.978		356.157	
Propulsion Equipment		155.895		598.471	
Hull, Mechanical, and Electrical (HM&E) (†)		153.141		160.226	
Ordnance (†)		121.842		215.438	
Other Cost		90.296		95.070	
Total Ship Estimate		**4,719.696**		**5,640.212**	
Less Advance Procurement FY 2012		14.008		-	
Less Advance Procurement FY 2013		69.918		-	
Less Advance Procurement FY 2014		245.793		-	
Less Advance Procurement FY 2015		483.600		-	
Less Advance Procurement FY 2016		-		14.951	
Less Advance Procurement FY 2017		-		233.149	
Less Advance Procurement FY 2018		-		75.897	
Less Advance Procurement FY 2019		-		425.873	
Less Subsequent Full Funding FY 2017		1,699.120		-	
Less Subsequent Full Funding FY 2018		1,569.669		-	
Less Subsequent Full Funding FY 2021		-		1,875.586	
Less Subsequent Full Funding FY 2022		-		1,885.041	
Less Previously Appropriated OPN FY 2004		-		234.028	
Less Previously Appropriated OPN FY 2005		-		247.761	
Net P-1 Funding		**637.588**		**647.926**	

Remarks:
CVN 74 RCOH Propulsion Equipment increase includes previously appropriated OPN funding for reactor power units. Funding is now included with the end cost per Section 1018 of the 2019 National Defense Authorization Act.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls			
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
CVN 73	HUNTINGTON INGALLS INDUSTRIES	2016	Aug 2017	Aug 2017	Aug 2021
CVN 74	HUNTINGTON INGALLS INDUSTRIES	2020	Jan 2021	Jan 2021	Jan 2025

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

Electronics	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
P-35 Items				
C4ISR	1	107.433	1	117.082
INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)	1	56.623	1	65.841
SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E	1	42.272	1	37.177
ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)	1	36.625	1	36.981
AN/SPN-46 OVERHAUL/UPGRADE	1	12.851	1	13.030
JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)	1	12.798	1	14.372
AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	1	11.546	1	10.296
AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM	1	6.304	0	-
AN/SPN-41 REFURBISHMENT	1	5.746	1	5.821
AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR	0	-	1	15.293
P-35 Items Subtotal		**292.198**		**315.893**
Major Items				
BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM	1	7.650	1	4.144
AN/SPN-43C REFURBISHMENT	1	3.982	0	-
AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE	1	3.576	0	-
NAVAL STRIKE WARFARE PLANNING CENTER (NSWPC)	1	3.095	1	3.466
AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET		1.915		2.855
AN/TPX-42(V)15 UPGRADE	1	1.803	0	-
JOINT STRIKE FIGHTER AUTONOMIC LOGISTICS INFORMATION SYSTEM (JSF-ALIS)	1	1.667	1	1.826
MQ-25 - UNMANNED AIRCRAFT SYSTEM (UAS)	0	-	1	21.500
AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM	0	-	1	4.160
Major Items Subtotal		**23.688**		**37.951**
Other Cost Elements				
TEST & CERTIFICATIONS, MISC.		3.092		2.313
Other Cost Elements Subtotal		**3.092**		**2.313**
Total Electronics		**318.978**		**356.157**

Remarks:

CVN 74 RCOH Electronics increase from CVN 73 RCOH includes $21.500M for MQ-25 Unmanned Aircraft System.

BATTLE FORCE TACTICAL TRAINING (BFTT) SYSTEM: CVN 73 is the first aircraft carrier to receive the Advance Training Domain (ATD) configuration. The CVN 73 RCOH cost includes funding for nonrecurring engineering (NRE) to implement the ATD configuration on the aircraft carrier, which is not required for CVN 74 RCOH. BFTT moved from a P-35 item to a major item.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

AN/SPN-43C REFURBISHMENT: AN/SPN-43C is replaced by AN/SPN-50(V)1 Radar Set for CVN 74 RCOH, which is a P-35 item.

AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE: AN/SLQ-32A(V)4 is replaced by SEWIP Block 2 for CVN 74 RCOH, which is an Ordnance P-35 item.

AN/UPX-29 - IDENTIFICATION FRIEND OR FOE (IFF) INTERROGATOR SET: CVN 74 RCOH IFF work scope is significantly larger than CVN 73 RCOH. The CVN 74 RCOH IFF equipment room is located on the 08 Level (08-171-1-C) and requires relocation to accommodate the main mast replacement. Onboard CVN 73, the IFF equipment room was located on the 07 Level (07-168-1-C) and was not impacted by the main mast replacement.

AN/TPX-42(V)15 UPGRADE: CVN 73 RCOH additional onboard test & evaluation of $0.006M was identified as necessary to support flight deck certification. The majority of the increased cost was offset by realized savings in achieved efficiencies to the removal effort. CVN 74 RCOH is receiving AN/SYY-1 Air Traffic Control System instead of AN/TPX-42(V)15.

AN/SYY-1 AIR TRAFFIC CONTROL SYSTEM: Replaces AN/TPX-42(V)15 Upgrade onboard CVN 74.

Other Cost Elements includes six unlisted systems, each under $1.000M in major hardware requirement. CVN 73 RCOH Test & Certifications costs were reduced by $3.203M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

Hull, Mechanical, and Electrical (HM&E)	FY 2016		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items				
AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL	1	14.452	0	-
FURNITURE (NON PROPULSION PLANT)	1	11.271	1	11.361
LOW PRESSURE AIR PLANT (LPAP)	1	6.363	1	7.008
AUTOMATIC VOLTAGE REGULATOR (AVR)	1	4.340	0	-
VSA O2 GENERATOR	0	-	1	5.183
P-35 Items Subtotal		**36.426**		**23.552**
Major Items				
PASSIVE COUNTER MEASURE SYSTEM (PCMS)	1	5.549	1	6.065
COMBAT SYSTEMS SUPPORT CENTER (CSSC) RIPOUT/INSTALL	1	3.851	1	4.313
CARRIER INTELLIGENCE CENTER (CVIC) RIPOUT/INSTALL	1	3.621	1	4.056
AFT CREW MESS	1	3.422	1	3.827
LAUNDRY DRYERS (SCD 3186)	1	2.720	1	3.035
MEDICAL AND DENTAL SUITE	1	2.586	1	2.435
NODE ROOM RIPOUT/INSTALL	1	1.988	1	2.227
COMBI-OVENS	1	1.853	0	-
ACE PLC CONTROL SYSTEM UPGRADE	1	1.785	1	2.000
DECK EDGE DOOR UPGRADE	1	1.735	1	2.066
Major Items Subtotal		**29.110**		**30.024**
Other Cost Elements				
ENGINEERING, TEST & CERTIFICATION		60.570		69.081
MISCELLANEOUS GOVERNMENT FURNISHED EQUIPMENT (GFE)		27.035		37.569
Other Cost Elements Subtotal		**87.605**		**106.650**
Total Hull, Mechanical, and Electrical (HM&E)		**153.141**		**160.226**

Remarks:

CVN 73 RCOH Major items net increased by $1.152M from PB19.

MEDICAL AND DENTAL SUITE: CVN 73 RCOH unit cost of required material procured from the government stock system increased by $0.230M from PB19.

COMBI-OVENS: Not required for CVN 74 RCOH.

DECK EDGE DOOR UPGRADE: Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

ENGINEERING, TEST & CERTIFICATION: CVN 73 RCOH engineering support increased by $7.687M from PB19 to fund a lean team of subject matter expert engineers to diagnose issues and provide solutions at a lower cost point to mitigate risk of cost and scope creep at the shipyard. CVN 74 RCOH cost increase is attributable to additional engineering and design efforts which includes antenna, enclosure, and structural analysis due to significant introduction of new technology.

MISCELLANEOUS GOVERNMENT FURNISHED EQUIPMENT (GFE): CVN 73 RCOH includes major item GFE not listed such as Hangar Division Door Upgrade ($0.990M), Lithium-Ion Battery Shop to Support JSF ($1.378M), and Weapons and Aircraft Elevators ($0.750M). The CVN 73 RCOH includes twenty-seven other unlisted systems totaling $22.917M, each under $1.000M in major hardware requirement. The CVN 74 RCOH includes twenty other unlisted systems totaling $28.274M, each under $1.000M in major hardware requirement.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

Ordnance	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
P-35 Items				
AVIATION EQUIPMENT & SUPPORT	1	47.984	1	46.843
NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)	1	17.984	1	30.870
AN/SPS-48G - 3D AIR SEARCH RADAR	1	13.220	0	-
AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT	1	8.486	0	-
AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)	1	3.624	1	3.131
ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	0	-	1	48.911
CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1	0	-	1	22.175
SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	0	-	1	18.397
MK 38 MOD 3 GUN SYSTEM	0	-	1	9.071
P-35 Items Subtotal		**91.298**		**179.398**
Major Items				
COMBAT DIRECTION CENTER (CDC)/FLAG RIPOUT/INSTALL	1	16.524	1	17.020
AN/SPQ-9B - ANTI-SHIP CRUISE MISSILE DEFENSE RADAR	1	3.624	1	4.472
MK 38 MOD 2 GUN SYSTEM	1	2.030	0	-
AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER	1	1.287	1	2.485
RAM GUIDED MISSILE LAUNCHING SYSTEM	1	1.185	1	2.542
MK 53 DECOY LAUNCHING SYSTEM (DLS)	0	-	1	5.725
Major Items Subtotal		**24.650**		**32.244**
Other Cost Elements				
TEST & CERTIFICATIONS, MISC		5.894		3.796
Other Cost Elements Subtotal		**5.894**		**3.796**
Total Ordnance		**121.842**		**215.438**

Remarks:

CVN 74 RCOH Ordnance increase from CVN 73 RCOH includes $86.500M for Enterprise Air Surveillance Radar (EASR), CIWS/RAM Defense Capability (CRDC) Block 1, and Surface Electronic Warfare Improvement Program (SEWIP) Block 2.

CVN 73 RCOH P-35 items net increased by $8.573M from PB19. The increased cost for NATO Seasparrow Surface Missile System (NSSMS) was partially offset by realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 73 RCOH Major items net decreased by $3.707M from PB19 largely due to the significant reduction in scope and cost for Seat Shop Modifications (JSF CVN)/Pilot Equipment and Helm as the requirement became more clearly defined upon initialization of the RCOH.

MK 38 MOD 2 GUN SYSTEM: MK 38 Mod 2 Gun System is replaced by MK 38 Mod 3 Gun System for CVN 74 RCOH, which is a P-35 item. CVN 74 MK 38 Mod 3 Gun System is a full (with GFE) install. For MK 38 Mod 2 Gun System, RCOH will install system infrastructure (cable, foundations) to facilitate install during a CIA in 2021. De-scoped GFE hardware procurement and installation to a future availability.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls

AN/SQQ-34C - CARRIER TACTICAL SUPPORT CENTER: CVN 74 RCOH is $1.198M higher than CVN 73 RCOH. CVN 74 RCOH is a full install (with GFE). CVN 73 RCOH GFE was de-scoped to a future availability.

RAM GUIDED MISSILE LAUNCHING SYSTEM: CVN 74 RCOH increased by $1.357M due to procurement of new hardware. CVN 73 RCOH hardware was obtained from decommissioned assets and refurbished. Additional decommissioned hardware assets are not available for CVN 74 RCOH, and all new hardware is required.

Other Cost Elements includes six unlisted systems, each under $1.000M in major hardware requirement. CVN 73 RCOH Test & Certifications costs were reduced by $2.318M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH. Other cost element decreases from CVN 73 RCOH to CVN 74 RCOH due to MK 53 Decoy Launching System becoming a major item and Phalanx MK 15 MOD 22 becoming a P-35 item on the CVN 74. MK 53 Decoy Launching System and Phalanx MK 15 MOD 22 were refurbishment only efforts on the CVN 73. CVN 74 is receiving MK 53 Decoy Launching System with new hardware and Phalanx MK 15 MOD 22 is included within the CIWS/RAM DEFENSE CAPABILITY.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2086 / CVN Refueling Overhauls	
Equipment Item: C4ISR		PARM Code: SPAWAR PMW 750

P-35 Category	FY 2016		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	46.621	1	53.772
Ancillary Equipment		2.383		2.703
Technical Data and Documentation		0.551		0.670
Spares		1.490		1.780
System Engineering		12.488		13.104
Technical Engineering Services		28.289		29.940
Other Costs		15.611		15.113
Total	**1**	**107.433**	**1**	**117.082**

Description:

Provides an integrated communications infrastructure to support both tactical and non-tactical applications in all warfare and support areas, an improved shipboard RF distribution system and multiband antennas, and capabilities for the control and monitoring of RF assets introducing network automation and provide interoperable communications for joint operations. It will interconnect forces of the Battle Group (BG)/ Amphibious Readiness Group (ARG) and connects the BG/ARG with expeditionary forces and the Commander-in-Chief Command Complex (CCC) ashore crossing all available media including Ultra High Frequency (UHF), Super High Frequency (SHF), Extremely High Frequency (EHF), commercial satellite links, and new medium-to-high data rate HF and UHF line of sight (LOS) links. C4ISR includes RCS, weather, navigational, signal exploitation, and command and control equipment.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Various	Various	Various	Various	1	46.621
FY 2020	CVN 74	Various	Various	Various	Various	1	53.772

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	0		Various
FY 2020	CVN 74	Jan 2025	0		Various

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Comprised of 36 discreetly funded line items. Major hardware net increased by $0.798M from PB19 to support Communications Data Link System Hybrid Tech Refresh (CDLS TR) after it was determined CDLS Refurbishment costs were considerably higher than the cost to procure. CDLS TR requires upgrade of the entire rack due to multiple commercial-off-the-shelf obsolescence issues. The CDLR TR Video Communications Equipment (VCE) rack is a low cost replacement solution that upgrades to WIN 10 and removes SWAP from the ship by eliminating the VIG rack and replacing the CMG rack with the VCE rack.

Other Costs net increased by $1.763M from PB19 due to the increase in cost for Consolidated Afloat Network Enterprise Services (CANES) software.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: C4ISR	**PARM Code:** SPAWAR PMW 750

Technical data and documentation, spares, system engineering, and technical engineering costs were reduced $2.561M from PB19 as a result of achieved efficiencies gained from lessons learned from the CVN 72 RCOH.

CVN 74 RCOH - Comprised of 34 discreetly funded line items. Cost estimates based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.

Major Hardware net increase of $7.150M from the CVN 73 RCOH primarily due to a $5.007M increase in Digital Modular Radio hardware cost. Digital Modular Radio hardware cost drivers are two fold; the cost per unit is increasing and the number of units required for CVN 74 RCOH increased from 51 to 66.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)	**PARM Code:** NAVSEA 05H3, NAVSEA 05Z33

P-35 Category	FY 2016		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	24.035	1	28.242
Ancillary Equipment		0.015		0.005
Technical Data and Documentation		1.313		1.865
Spares		0.556		0.474
System Engineering		9.180		8.572
Technical Engineering Services		14.619		17.719
Other Costs		6.905		8.964
Total	**1**	**56.623**	**1**	**65.841**

Description:

The Integrated Communication Network consists of the following systems: An Integrated Communications System (ICS) that provides the ship's Internal Command and Control Communications. In addition, ICS provides connectivity to other onboard systems such as Announcing Systems, Sound Powered Circuits, Secure / Non Secure off-ship Communications, Shipboard Air Traffic Control Communications (SATCC) and Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA). The Machinery Control Monitoring System (MCMS) controls and monitors approximately 3500 machinery signals for various HM&E auxiliary systems (e.g. JP5, firemen, IC/SM panels) for aircraft carriers. It utilizes the Machinery Control Network for signals. The Machinery Control Network (MCN) is the core network that provides communication services and transport for the MCMS system and part of the backbone that rides over the Fiber Optic Cable Plant (FOCP). It consists of five network switches, associated racks, and cabling. The Navigation Critical Distribution System (NAVCRIT) is a switched network providing communication services and transport for the NAV Standard Message, which is originated in the NAVSSI (Naval Sensor System Interface) system. The NAVCRIT Distribution consists of three backbone switches and eight I/0 controllers to convert digital NAV data for analog outputs. It will use the FOCP to the maximum extent for connectivity. The Ship Control System (SCS) provides control and display of rudder position, Engine and Propeller Order Telegraph functions. SCS provides data for heading, speed, and rudder angles through NAVCRIT Network from NAVSSI. The SCS interfaces to an Electronic Chart Display Information System. Shipboard Multipurpose Copiers includes the acquisition and installation of Class III Copier/Printer (B&W), Class III Color Copier/Printer, Class IV Copier/Printer (B&W) and Class IV Color Copier/Printer. The related equipment is for use on surface vessels in the US Navy as part of the Shipboard Multipurpose Copier Program.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2016	CVN 73	Various	Various	Various	Various	1	24.035
FY 2020	CVN 74	Various	Various	Various	Various	1	28.242

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	0		Various
FY 2020	CVN 74	Jan 2025	0		Various

Competition/Second Source Initiatives:

N/A

Remarks:

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: INTEGRATED COMMUNICATION NETWORK (ICAN / DDCN & IVCN)	**PARM Code:** NAVSEA 05H3, NAVSEA 05Z33

CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH.

Major Hardware net increase of $4.207M from the CVN 73 RCOH. Hardware cost increase due to procurement of Afloat Multi-Media Production System (AMMPS) and Advanced Damage Control System procurement not accomplished on CVN 73 RCOH.

Technical Engineering Services net increase of $3.100M from the CVN 73 RCOH. Technical engineering service estimate is based upon a preliminary scope of work. When Ship Installation Drawings are developed (FY 2019-20) the work scopes will be refined and cost estimates updated.

Other Costs net increase of $2.059M from the CVN 73 RCOH. Other cost estimate is based upon a preliminary scope of work. When Ship Installation Drawings are developed (FY 2019-20) the work scopes will be refined and cost estimates updated.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: SHIP SELF DEFENSE SYSTEM (SSDS) MK2 MOD 1E	**PARM Code:** NAVSEA PEO IWS 10

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	10.020	1	10.972
Technical Data and Documentation		0.885		1.189
Spares		0.845		0.898
System Engineering		7.658		6.361
Technical Engineering Services		4.395		4.155
Other Costs		18.469		13.602
Total	**1**	**42.272**	**1**	**37.177**

Description:

The Ship Self Defense System (SSDS) MK2 provides primary support for force/own ship combat systems control and enhanced self-defense capabilities. SSDS is the heart of the Combat System integrating sensors, weapons systems, data links, and command and control elements into a unified Combat System.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Raytheon/Lockheed Martin	C/CPFF	Apr 2018	Option	1	10.020
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	10.972

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	22	18	Apr 2018
FY 2020	CVN 74	Jan 2025	22	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Cost savings initiatives to streamline processes, leverage common efforts across multiple platforms, and provide the same services and products at a reduced cost, achieved savings in major hardware, technical data and documentation, and system engineering. Cost savings are realized as efficiency initiatives are achieved during contract negotiations for hardware.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. Cost reduction initiative realized cost savings in system engineering ($1.297M) and other costs ($4.867M) related efforts. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: ELECTRONIC CONSOLIDATED AUTOMATED SUPPORT SYSTEM (ECASS)	**PARM Code:** NAVAIR PMA 260

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	35.000	1	35.017
Technical Engineering Services		1.225		1.564
Other Costs		0.400		0.400
Total	**1**	**36.625**	**1**	**36.981**

Description:

The Electronic Consolidated Automated Support System (eCASS) provides repair capability for aircraft instruments, components ("black boxes"), subcomponents (e.g. circuit cards), avionics and missile systems for all current deployable aircraft, F/A-18 ATFLIR (Forward Looking Infrared Receiver) and ALQ-99 (electronic jamming) systems, as well as new and future aircraft such as E-2D and F-35C. The eCASS replaces the obsolete Consolidated Automated Support System (CASS) that formerly provided this support. The eCASS suite provides expeditious, on-site repair capability for more than 1,100 different components, without which parts support for the ship's AIRWING (which routinely operates at great distances from logistics supply points) would be degraded to the point that it would result in increased support costs and negatively affect mission accomplishment, combat readiness, and required sortie generation rates.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Lockheed Martin	C/CPFF	Oct 2018	New	1	35.000
FY 2020	CVN 74	TBD	TBD	Feb 2022		1	35.017

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	23	12	Sep 2018
FY 2020	CVN 74	Jan 2025	23	12	Feb 2022

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Contract data is "TBD" due to ongoing solicitation for second full rate production contract actions.

CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPN-46 OVERHAUL/UPGRADE	**PARM Code:** NAVAIR PMA 213

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	6.661	1	5.768
System Engineering		0.599		0.666
Technical Engineering Services		3.360		3.565
Other Costs		2.231		3.031
Total	**1**	**12.851**	**1**	**13.030**

Description:

The AN/SPN-46 Automatic Carrier Landing System (ACLS) is a precision approach landing system (PALS) which provides electronic guidance to carrier-based aircraft and allows them to land in all-weather conditions with no limitations due to low ceiling or restricted visibility. AN/SPN-46 is a fully automated, all-weather approach landing aid for carrier aircraft that enhances safety of flight during recovery, enables the execution of all-weather air combat operations, and is required to achieve full air traffic control certification following RCOH. AN/SPN-46 is required to be removed during the RCOH to prevent damage and allow for major infrastructure recapitalization and reconfiguration of the ship's island, mast, and tower.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	NAWC Aircraft Division	WR	Jan 2015		1	6.661
FY 2020	CVN 74	TBD	TBD	Sep 2019		1	5.768

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	24	24	Aug 2017
FY 2020	CVN 74	Jan 2025	28	36	Sep 2019

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)	**PARM Code:** NAVAIR PMA 213

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	9.380	1	9.921
Spares		0.909		0.946
System Engineering		0.204		0.762
Technical Engineering Services		1.394		1.435
Other Costs		0.910		1.308
Total	**1**	**12.797**	**1**	**14.372**

Description:

The Joint Precision Approach and Landing System (JPALS) is the future precision approach and landing system which will be the primary landing system for the Joint Strike Fighter (F-35B/F-35C), Unmanned Carrier Aviation Air System (MQ-25A), and future aircraft platforms onboard CVNs and LHA/LHD type ships. JPALS is the Navy certified sea-based system to have the capabilities necessary to provide ship range/bearing for JPALS-equipped aircraft operating within 200NM; provide air traffic control surveillance of JPALS-equipped aircraft via secure, two-way data link with the ship; and support auto-land functionality for the F-35C, MQ-25A, and future platforms to CVNs. JPALS is critical for MQ-25A as currently no secondary landing system exists for MQ-25A operations at sea.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	NAWC Aircraft Division		Mar 2019	New	1	9.380
FY 2020	CVN 74	TBD	TBD	Sep 2021		1	9.921

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	14	15	Mar 2019
FY 2020	CVN 74	Jan 2025	34	6	Sep 2021

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Sea-based JPALS equipment procurement and equipment production support increased from PB19.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time. Significant difference in Production Lead Time and Months Required Before Delivery due to limited manufacturer capacity of LRIP units and timing for other fleet requirements for JPALS system.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/USG-2B - COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	**PARM Code:** NAVSEA PEO IWS 6.0

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	3.448	1	4.973
Spares		0.338		0.476
System Engineering		1.675		0.677
Technical Engineering Services		1.962		2.140
Other Costs		4.123		2.030
Total	**1**	**11.546**	**1**	**10.296**

Description:

AN/USG-2B - Cooperative Engagement Capability (CEC) provides Battle Force Anti-Air Warfare (AAW) capability by coordinating all force AAW sensors into a single real time, fire control quality composite track picture. CEC distributes sensor measurement data from each Cooperating Unit (CU) to all other CUs. Each CU has a Data Distribution System (DDS) and a Cooperative Engagement Processor (CEP). The DDS encodes and distributes ownship sensor and engagement data to other CUs, and receives and decodes other CU's data. The CEP processes ownship data and DDS supplied remote sensor and weapon data needed to provide the common air picture.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Raytheon/Sechan	C/FFP	Jan 2016	Option	1	3.448
FY 2020	CVN 74	TBD	TBD	Oct 2020		1	4.973

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	34	18	Apr 2017
FY 2020	CVN 74	Jan 2025	33	18	Oct 2020

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Major Hardware net increase of $1.525M from the CVN 73 RCOH is based upon an initial government estimate. GFE procurement is scheduled for first quarter of FY 2021. The government estimate will be refined based upon the procurement contract.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM	**PARM Code:** NAVSEA PEO IWS 2E

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	1.500	0	-
Ancillary Equipment		0.100		-
Spares		0.045		-
System Engineering		0.319		-
Technical Engineering Services		3.890		-
Other Costs		0.450		-
Total	**1**	**6.304**	**0**	**-**

Description:

AN/SLQ-59 - ELECTRONIC WARFARE (EW) SYSTEM is a CNO designated program in response to PACFLT/CJTF519 Urgent Operational Needs Statement (UONS) designed to enhance existing shipboard Surface Electronic Warfare Systems. AN/SLQ-59 provides enhanced shipboard Electronic Support (ES) and Electronic Attack (EA) capabilities.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Electro Impulse Laboratory, Inc	SS/IDIQ	Nov 2018	Option	1	1.500

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	18	12	Feb 2019

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - AN/SLQ-59 was installed onboard CVN 74 prior to the RCOH.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPN-41 REFURBISHMENT	**PARM Code:** NAVAIR PMA 213

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	3.577	1	3.796
System Engineering		0.393		0.433
Technical Engineering Services		1.570		1.331
Other Costs		0.206		0.261
Total	**1**	**5.746**	**1**	**5.821**

Description:

The AN/SPN-41 Aircraft Approach Control Transmitting Set provides all-weather instrument approach guidance from the ship to the aircraft. It is used as the ship's Instrument Landing System (ILS) and Monitor to provide azimuth and elevation alignment information to landing aircraft on final approach to the deck. It also serves as an independent monitor of other shipboard landing systems for the pilot as well as providing a backup landing guidance option. AN/SPN-41 enhances safety of flight during recovery, enables the execution of all-weather air combat operations, and is required to achieve full air traffic control certification following RCOH. AN/SPN-41 is required to be removed during the RCOH to prevent damage and allow for major infrastructure recapitalization and reconfiguration of the ship's island, mast, and tower.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	NAWC Aircraft Division	WR	Jul 2017		1	3.577
FY 2020	CVN 74	TBD	TBD	Dec 2020		1	3.796

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	25	24	Jul 2017
FY 2020	CVN 74	Jan 2025	25	24	Dec 2020

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPN-50(V)1 AIR TRAFFIC CONTROL RADAR	**PARM Code:** NAVAIR PMA 213

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	10.734
Technical Data and Documentation		-		0.134
Spares		-		1.087
System Engineering		-		0.636
Technical Engineering Services		-		2.351
Other Costs		-		0.351
Total	**0**	**-**	**1**	**15.293**

Description:

Digital radar system capable of modern radar processing to improve target detection and track in the presence of competing clutter. C-band radar alleviating operational congestion of new shipboard S-band radars and restrictions caused by increasing spectrum encroachment and National Broadband Plan.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	May 2021		1	10.734

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	32	12	May 2021

Competition/Second Source Initiatives:

N/A

Remarks:

AN/SPN-50(V)1 is a new addition to the CVN 74 RCOH program of record, replacing AN/SPN-43C. CVN 74 Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AIRCRAFT ELECTRICAL SERVICE STATION (AESS) INSTALL	**PARM Code:** NSWC Philadelphia

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	6.891	0	-
System Engineering		0.238		-
Technical Engineering Services		7.035		-
Other Costs		0.288		-
Total	**1**	**14.452**	**0**	**-**

Description:

Aircraft Electrical Service Station (AESS) supports the F-35 Joint Strike Fighter (JSF) and JUCAS electrical requirements. They require 270VDC electrical power for maintenance and pre-flight operations. This type of power is not currently available on CVN 68 class aircraft carriers. This ship alteration will equip CVN 68 class ships with a dual purpose AESS station providing either: 90KVA of 115VAC, 400Hz, power for the Advanced Hawkeye (E-2D), and all legacy aircraft, or 70KW of 270VDC electrical power for the JSF (F-35) and JUCAS. This upgrade will replace the obsolete components now part of the AESS with a quiet, lightweight, low-cost, dual-purpose system that decreases maintenance costs and improves habitability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Various	C/FFP	Jan 2017	New	1	6.891

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	51	12	May 2016

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Aircraft Electrical Service Station (AESS) was installed onboard CVN 74 prior to the RCOH. No further AESS work is required during the RCOH.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: FURNITURE (NON PROPULSION PLANT)	**PARM Code:** NSWC Philadelphia

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	4.647	1	4.948
System Engineering		0.641		-
Technical Engineering Services		5.981		6.413
Other Costs		0.002		-
Total	**1**	**11.271**	**1**	**11.361**

Description:

Replaces damaged/worn furniture for 250 spaces. During the RCOH, all furniture is offloaded and evaluated for reuse. Most furniture is stored and reinstalled. However, damaged furniture must be replaced as it cannot be properly secured and poses a personnel risk during high sea states.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Tecnico	C/CPFF	Dec 2016	New	1	4.647
FY 2020	CVN 74	TBD	TBD	Apr 2021		1	4.948

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	39	6	Nov 2017
FY 2020	CVN 74	Jan 2025	39	6	Apr 2021

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: LOW PRESSURE AIR PLANT (LPAP)	**PARM Code:** NSWC Philadelphia

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	6.094	1	6.699
System Engineering		0.071		0.089
Technical Engineering Services		0.085		0.093
Other Costs		0.113		0.127
Total	**1**	**6.363**	**1**	**7.008**

Description:

Remove three Ship Service Air Compressors (SSAC), four Control Air Compressors, and associated dryers from two machinery rooms and two reactor rooms. Install nine MARC 350 Low Pressure Air Plants (LPAPs) to serve both ship service air and control air systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	RIX Industries	SS/IDIQ	Feb 2015	Option	1	6.094
FY 2020	CVN 74	TBD	TBD	Jan 2019		1	6.699

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	51	12	May 2016
FY 2020	CVN 74	Jan 2025	60	12	Jan 2019

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AUTOMATIC VOLTAGE REGULATOR (AVR)	**PARM Code:** NAVSEA PMS 312

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	4.340	0	-
Total	**1**	**4.340**	**0**	**-**

Description:

The Turbine Generator Automatic Voltage Regulator is a digital upgrade to the legacy voltage regulator. Its purpose is to regulate output voltage from shipboard turbine generators to meet electrical requirements for all ship systems. This upgrade is required to improve operational safety of the turbine generators and eliminate material shortages due to obsolescence of legacy voltage regulator system components.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Northrop Grumman Power/Control Systems	C/FFP	Jun 2015	Option	1	4.340

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	47	26	Jul 2015

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH - Automatic Voltage Regulator was installed onboard CVN 74 prior to the RCOH. No further AVR work is required during the RCOH.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: VSA O2 GENERATOR	**PARM Code:** NSWC Philadelphia

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	3.546
Spares		-		0.180
System Engineering		-		0.865
Technical Engineering Services		-		0.294
Other Costs		-		0.298
Total	**0**	**-**	**1**	**5.183**

Description:

One liquid oxygen generating and storage plant with associated support equipment; one gaseous nitrogen generator with associated storage flasks.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	Dec 2019		1	3.546

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	49	12	Dec 2019

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH O2N2 effort only required assessments and repair. CVN 74 RCOH requires new hardware and more work than was executed on the CVN 73 RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AVIATION EQUIPMENT & SUPPORT	**PARM Code:** NAVAIR PMA 251

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	28.560	1	30.037
Ancillary Equipment		-		0.074
Technical Data and Documentation		-		0.199
Spares		0.039		0.332
System Engineering		3.856		3.284
Technical Engineering Services		10.154		7.356
Other Costs		5.375		5.561
Total	**1**	**47.984**	**1**	**46.843**

Description:

Provides procurement, engineering and logistics support for launch and recovery equipment (includes overhaul/replacement of catapult launch valves and arresting gear engines), ADMACS (Aviation Data Management and Control System Phase II upgrade; includes Cyber Security requirement and future aircraft ready), Moriah Wind System, ILARTS (Integrated Launch and Recovery TV Surveillance System; includes Technical Refresh Service Change to mitigate obsolescence issues), mission pods, Jet Blast Deflectors (includes Service Change to provide side panel cooling to meet JSF requirements), aviation maintenance facility, weapons compatibility, aircraft spotting, aviation servicing facilities, Landing Signal Officer Display System (LSODS; includes ADMACS interfacing and Cyber Security updates), Long Range Lineup System (LRLS), Improved Fresnel Lens Optical Landing System (IFLOLS; includes Phase IV upgrade), Manually Operated Visual Landing Aid System (MOVLAS) and Flight Deck Lighting and Marking and Lighting. All of these systems are required to be repaired, updated, overhauled as required and tested during RCOH to attain final Flight Deck Certification authorizing launch and recovery of USN aircraft.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Various	Various	Various	Various	1	28.560
FY 2020	CVN 74	Various	Various	Various	Various	1	30.037

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	0		Various
FY 2020	CVN 74	Jan 2025	0		Various

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Technical Engineering Services cost growth from PB19 due to the increased use of government AITs vice using shipyard install teams. Government install teams are approximately 25% less costly and are an overall cost savings to the program.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. Cost reduction initiatives resulted in cost savings in Technical Engineering Services ($2.798M) related efforts. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: NATO SEASPARROW SURFACE MISSILE SYSTEM (NSSMS)	**PARM Code:** NAVSEA PEO IWS 12

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	5.284	1	17.062
Ancillary Equipment		-		0.050
Spares		0.913		1.260
System Engineering		0.680		0.861
Technical Engineering Services		9.346		9.346
Other Costs		1.761		2.291
Total	**1**	**17.984**	**1**	**30.870**

Description:

The NATO Seasparrow Surface Missile System (NSSMS) is a medium range self defense missile system capable of defeating near/mid-term air/surface threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	NSWC Port Hueneme	SS/FFP	Apr 2017	New	1	5.284
FY 2020	CVN 74	TBD	TBD	Feb 2020		1	17.062

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	28	30	Apr 2017
FY 2020	CVN 74	Jan 2025	28	31	Feb 2020

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Significantly degraded system components revealed upon open and inspection. The high operation tempo of the forward deployed ship caused the system to degrade beyond original expectation. Required refurbishment costs to restore this critical weapon system increased significantly since PB19 to address the degraded components and associated testing.

CVN 74 RCOH - Major Hardware net increase of $11.778M from CVN 73 RCOH. CVN 73 RCOH is limited to refurbishment of the hardware. Spare components are not available to support refurbishment of the CVN 74 RCOH equipment. New hardware buys are required to replace high wear items that have significantly degraded due to age of the system, including a Missile Launcher Upgrade (MLU).

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPS-48G - 3D AIR SEARCH RADAR	**PARM Code:** NAVSEA PEO IWS 2RI

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	8.500	0	-
Technical Data and Documentation		0.033		-
Spares		0.328		-
System Engineering		0.725		-
Technical Engineering Services		1.528		-
Other Costs		2.106		-
Total	**1**	**13.220**	**0**	**-**

Description:

AN/SPS-48G (V)1 is a long range three dimensional (3D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data to track airborne contacts.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Harris	SS/FPIF	Sep 2016	Option	1	8.500

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	28	18	Oct 2017

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 74 RCOH - AN/SPS-48G will be replaced by Enterprise Air Surveillance Radar (EASR), enhancing Air Surveillance Radar capability, increasing system availability, and re-baselines sustainment.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPS-49(V)1 OVERHAUL/REFURBISHMENT	**PARM Code:** NAVSEA PEO IWS 2RI

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	3.291	0	-
Ancillary Equipment		0.030		-
Spares		0.275		-
System Engineering		0.657		-
Technical Engineering Services		3.657		-
Other Costs		0.576		-
Total	**1**	**8.486**	**0**	**-**

Description:

The AN/SPS-49A(V)1 Radar is a narrow beam, very long range, two dimensional air search radar. This is the primary air search radar for the ship providing early detection of airborne contacts (range, bearing, and altitude).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	NSWC Crane	WR	Apr 2017	Option	1	3.291

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	22	30	Apr 2017

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 74 RCOH - AN/SPS-49A(V)1 will be replaced by Enterprise Air Surveillance Radar (EASR), enhancing Air Surveillance Radar capability, increasing system availability, and re-baselines sustainment.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: AN/SPQ-14 - ADVANCED SENSOR DISTRIBUTION SYSTEM (ASDS)	**PARM Code:** NAVSEA PEO IWS 1.0

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	1.153	1	1.068
Ancillary Equipment		0.010		0.011
Spares		0.045		0.075
System Engineering		0.074		0.115
Technical Engineering Services		1.191		1.394
Other Costs		1.151		0.468
Total	**1**	**3.624**	**1**	**3.131**

Description:

AN/SPQ-14(V) - Advanced Sensor Distribution System (ASDS) provides the distribution of radar sensor data and video to radar displays on board the ship.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2016	CVN 73	Lockheed Martin/DRS Technologies	C/FFP	Jan 2018	Option	1	1.153
FY 2020	CVN 74	TBD	TBD	Sep 2021		1	1.068

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2016	CVN 73	Aug 2021	22	18	Apr 2018
FY 2020	CVN 74	Jan 2025	22	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 73 RCOH - Overall decrease from PB19 is a result of realized savings from a PMS 312 cost reduction initiative to reduce program management, system engineering, and logistics support.

CVN 74 RCOH - Cost estimate based on a FY 2023 install with work extending until the end of the RCOH in FY 2025. These estimates will be refined and matured as we progress towards the start of the RCOH. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: ENTERPRISE AIR SURVEILLANCE RADAR (EASR)	**PARM Code:** NAVSEA PEO IWS 2RI

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	26.103
Technical Data and Documentation		-		0.005
Spares		-		0.778
System Engineering		-		6.606
Technical Engineering Services		-		9.745
Other Costs		-		5.674
Total	**0**	**-**	**1**	**48.911**

Description:

Enterprise Air Surveillance Radar (EASR) is the next generation S-band air search radar with 3-D search capability supporting: Anti-Air Warfare, Anti-Surface Warfare, Air Traffic Control.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	26.103

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	33	24	Apr 2020

Competition/Second Source Initiatives:

N/A

Remarks:

Enterprise Air Surveillance Radar (EASR) is a replacement for the legacy AN/SPS-48 and AN/SPS-49 Air Search Radars that are no longer in production and are experiencing increasing service life obsolescence issues. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: CIWS/RAM DEFENSE CAPABILITY (CRDC) BLOCK 1	**PARM Code:** NAVSEA PEO IWS 3G

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	18.300
Technical Engineering Services		-		3.483
Other Costs		-		0.392
Total	**0**	**-**	**1**	**22.175**

Description:

Close-In Weapon System (CIWS)/Rolling Airframe Missile (RAM) Defense Capability (CRDC) is a high fire rate gun weapon system that automatically acquires, tracks, and destroys threats. Active radars, supporting platforms, below deck equipment, and interfaces them to CIWS for Quick Reaction Capability (QRC).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	Feb 2020		1	18.300

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	33	26	Feb 2020

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH CIWS/RAM Defense Capability (CRDC) Block 1 is a significant enhancement for CIWS. Contract Data is "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP) BLOCK 2	**PARM Code:** NAVSEA PEO IWS 2E

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	10.221
Technical Data and Documentation		-		0.233
Spares		-		0.401
System Engineering		-		0.828
Technical Engineering Services		-		5.635
Other Costs		-		1.079
Total	**0**	**-**	**1**	**18.397**

Description:

Surface Electronic Warfare Improvement Program (SEWIP) Block 2 detects and classifies special signals not processed by other SLQ-32 receivers. SEWIP Block 2 provides enhanced Electronic Support (ES) capability with improved detection and accuracy to pace evolving threats through an upgraded ES antenna & receiver along with an open combat system interface.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	May 2020		1	10.221

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	32	24	May 2020

Competition/Second Source Initiatives:

N/A

Remarks:

CVN 74 RCOH Surface Electronic Warfare Improvement Program (SEWIP) Block 2 is a significant enhancement from AN/SLQ-32A(V)4 - ELECTRONIC WARFARE SUITE. Contract Data "TBD" as contract award information is unknown at this time.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2086 / CVN Refueling Overhauls
Equipment Item: MK 38 MOD 3 GUN SYSTEM	**PARM Code:** NAVSEA PEO IWS 3C

P-35 Category	FY 2016 Qty (Each)	FY 2016 Total Cost ($ M)	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	0	-	1	6.693
Spares		-		0.097
Technical Engineering Services		-		2.056
Other Costs		-		0.225
Total	**0**	**-**	**1**	**9.071**

Description:

MK 38 Mod 3 Gun System is a 25mm stabilized gun with auto tracking and day/night capability that is also capable of interfacing with 7.62 mm MK 52 MOD 0 Coaxial gun.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	CVN 74	TBD	TBD	Apr 2020		1	6.693

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	CVN 74	Jan 2025	33	24	Apr 2020

Competition/Second Source Initiatives:

N/A

Remarks:

MK 38 Mod 3 Gun System replaces MK 38 Mod 2 Gun System, which is an Electronics Major item. MK 38 Mod 3 Gun System is a full install (with GFE) and MK 38 Mod 2 Gun System is an infrastructure only install (no GFE). Contract Data is "TBD" as contract award information is unknown at this time.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2119 / DDG 1000
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	3	-	-	-	-	-	-	-	-	-	-	3
Gross/Weapon System Cost *($ in Millions)*	13,195.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	13,195.453
Less PY Advance Procurement *($ in Millions)*	1,160.116	-	-	-	-	-	-	-	-	-	-	1,160.116
Less Subsequent Year Full Funding *($ in Millions)*	7,943.472	-	-	-	-	-	-	-	-	-	-	7,943.472
Net Procurement (P-1) *($ in Millions)*	4,091.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	4,091.865
Plus Subsequent Year Full Funding *($ in Millions)*	7,247.095	216.968	270.965	155.944	-	155.944	50.400	2.100	-	-	-	7,943.472
Full Funding TOA *($ in Millions)*	11,338.960	216.968	270.965	155.944	-	155.944	50.400	2.100	-	-	-	12,035.337
Plus CY Advance Procurement *($ in Millions)*	1,160.116	-	-	-	-	-	-	-	-	-	-	1,160.116
Total Obligation Authority *($ in Millions)*	**12,499.076**	**216.968**	**270.965**	**155.944**	**0.000**	**155.944**	**50.400**	**2.100**	**0.000**	**0.000**	**-**	**13,195.453**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	206.638	40.732	44.608	62.992	-	62.992	12.720	18.202	34.391	39.464	-	459.747
Total *($ in Millions)*	**12,705.714**	**257.700**	**315.573**	**218.936**	**-**	**218.936**	**63.120**	**20.302**	**34.391**	**39.464**	**-**	**13,655.200**
Gross/Weapon System Unit Cost *($ in Millions)*	4,398.484	-	-	-	-	-	-	-	-	-	-	4,398.484

Description:

DDG 1000, a multi-mission surface combatant will serve as a versatile asset in the context of future Naval Strategy. Armed with an array of weapons, DDG 1000 will provide the Joint Force Commander with precision strike and volume fires. Designed with sustainable payload, multi-spectral stealth and optimal manning, DDG 1000 will take the fight to the enemy with unprecedented striking power, sustainability, survivability and information dominance. FY20 funding will support continued construction on DDG 1002, Class Services, and GFE / Mission Systems Equipment (MSE) procurement/activation and fund Interim Spares.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2119 / DDG 1000

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:

	DDG
Length Overall	610 ft
Beam	80.7 ft
Displacement	15,742 TONS
Draft	27.6 ft

Systems:

Electronics
-EXTERIOR COMMUNICATIONS (EXCOMMS)
-MULTI FUNCTION RADAR (MFR)
-TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)

Hull, Mechanical, and Electrical (HM&E)
-MAIN TURBINE GENERATOR (MTG)

Ordnance
-ADVANCED GUN SYSTEM (AGS)
-CLOSE-IN GUN SYSTEM (CIGS)

Production Status:	DDG 1000 (1)	DDG 1001 (2)	DDG 1002 (3)
Contract Award Date	Feb 2008	Sep 2011	Sep 2011
Months to Completion			
a) Award to Delivery	139 months	108 months	132 months
b) Construction Start to Delivery	127 months	126 months	125 months
Delivery Date	Sep 2019	Sep 2020	Sep 2022
Completion Of Fitting Out	Jan 2020	Oct 2020	Oct 2022
Obligation Work Limit Date	Dec 2020	Sep 2021	Sep 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	N/A	N/A		
Request for Proposals	Jan 2006	Apr 2006		
Design Agent	Northrop Grumman Ship Systems			

Classification of Cost Estimate: CLASS C BUDGET ESTIMATE

Footnotes:

(1) DDG 1000 HM&E delivery from the shipbuilder was May 2016. The shift in final delivery date from December 2018 to Sept 2019 can be attributed to delays in the completion of the DDG 1000 Combat System Availability.

(2) DDG 1001 was re-awarded to BIW in September 2011. DDG 1001 HM&E delivery from the shipbuilder was April 2018. Final Delivery is September 2020.

(3) DDG 1002 HM&E contractual delivery from the shipbuilder is March 2020. Final Delivery is September 2022

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			**Date:** March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		**P-1 Line Item Number / Title:** 2119 / DDG 1000		
Cost Categories (†) indicates the presence of a P-8a	**FY 2007**		**FY 2009**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	2	1,553.687	1	563.438
Basic Construction/Conversion		3,632.747		1,275.100
Change Orders		320.320		80.328
Electronics (†)		2,727.577		1,443.688
Hull, Mechanical, and Electrical (HM&E) (†)		242.156		76.848
Ordnance (†)		515.811		264.891
Other Cost		366.110		132.752
Total Ship Estimate		**9,358.408**		**3,837.045**
Less Advance Procurement FY 2005		304.046		-
Less Advance Procurement FY 2006		706.240		-
Less Advance Procurement FY 2008		-		149.830
Less Subsequent Full Funding FY 2008		3,009.929		-
Less Subsequent Full Funding FY 2010		313.025		1,065.507
Less Subsequent Full Funding FY 2011		107.020		140.062
Less Subsequent Full Funding FY 2012		437.938		70.789
Less Subsequent Full Funding FY 2013		536.503		138.020
Less Subsequent Full Funding FY 2014		230.944		31.349
Less Subsequent Full Funding FY 2015		374.916		85.933
Less Subsequent Full Funding FY 2016		277.761		155.643
Less Subsequent Full Funding FY 2017		198.180		73.576
Less Subsequent Full Funding FY 2018		116.001		100.967
Less Subsequent Full Funding FY 2019		74.623		196.342
Less Subsequent Full Funding FY 2020		83.714		72.230
Less Subsequent Full Funding FY 2021		-		50.400
Less Subsequent Full Funding FY 2022		-		2.100
Net P-1 Funding		**2,587.568**		**1,504.297**

Remarks:
PB19 to PB20 Changes
DDG 1002 Total Ship Computing Environment (TSCE) reflects $7M reduction as a result of the PB18 congressional mark
PB20 has realigned FY20 funding ($64.5 million), FY21 funding ($50.4 million), and FY22 funding ($2.1 million) for the planning and execution of the DDG 1001 and DDG 1002 combat system availability occurring after HM&E delivery and sailaway from the prime shipbuilder Bath Iron Works. This funding was budgeted in the Navy post-delivery account (LI 5110) prior to aligning to DDG 1000 (LI 2119).
In addition, ($53.228 million) was added in FY20 for unfunded emergent requirements that include DDG 1000 combat system availability overrun by 14 months, DDG MTG 1001 replacement, DDG 1002 harmonic filter repair, and costs that run with time to support the class.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000

Funding was re-aligned from Basic to Change Orders for execution of the DDG 1000 and BIW Memorandum of Agreement settlement from 3 December 2015 where parties subsequently reached agreement to adjust the price of this Contract for all Class I and Class II changes on DDG 1001 and DDG 1002. In addition, funding was aligned to Basic from Change Orders for the execution of the Pension Protection Act Settlement.

Comments addressing Electronics, HM&E, and Ordnance are addressed on the corresponding P8A & P35 exhibits.

Plans: Increase to DDG 1001 and 1002 combat system availability planning.
Basic: Increase to DDG 1001 and 1002 combat system execution events. Decrease is addressed above comment (re-alignment basic to change orders).
Change Orders: Increase is addressed above comment (re-alignment basic to change orders).
Other: Increase to DDG 1000 Class for professional and engineering services supporting the combat system availabilities.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2119 / DDG 1000		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
DDG 1000 (1)	BIW	2007	Feb 2008	Feb 2009	Sep 2019
DDG 1001 (2)	BIW	2007	Sep 2011	Mar 2010	Sep 2020
DDG 1002 (3)	BIW	2009	Sep 2011	Apr 2012	Sep 2022

Footnotes:

(1) DDG 1000 HM&E delivery from the shipbuilder was May 2016. The shift in final delivery date from December 2018 to Sept 2019 can be attributed to delays in the completion of the DDG 1000 Combat System Availability.

(2) DDG 1001 was re-awarded to BIW in September 2011. DDG 1001 HM&E delivery from the shipbuilder was April 2018. Final Delivery is September 2020.

(3) DDG 1002 HM&E contractual delivery from the shipbuilder is March 2020. Final Delivery is September 2022

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2119 / DDG 1000

Electronics	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
P-35 Items				
EXTERIOR COMMUNICATIONS (EXCOMMS)	2	470.348	1	79.962
INTEGRATED UNDERSEA WARFARE (IUSW) SYSTEM	2	216.263	1	105.136
MULTI FUNCTION RADAR (MFR)	2	519.609	1	297.999
COMMON ARRAY POWER SYSTEM (CAPS)	2	97.017	1	16.409
TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)	2	382.591	1	259.191
ELECTRO-OPTICAL / INFRARED (EO/IR)	2	94.411	1	31.452
IDENTIFICATION FRIEND OR FOE (IFF)	2	35.532	1	28.138
COMMON ARRAY COOLING SYSTEM (CACS)	2	20.065	1	0.965
SHIP CONTROL SYSTEM (SCS)	2	111.527	1	117.229
COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	2	16.025	1	7.800
SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP)	2	40.242	1	17.682
VERTICAL LAUNCHING SYSTEM (VLS) MK 57 4-CELL MODULES	40	276.782	20	302.815
P-35 Items Subtotal		**2,280.412**		**1,264.778**
Other Cost Elements				
MISSION SYSTEM ENGR INTEGR & TEST (MSEIT)		322.274		132.510
MISSION SYSTEM ACTIVATION		114.891		40.900
SPARES		10.000		5.500
Other Cost Elements Subtotal		**447.165**		**178.910**
Total Electronics		**2,727.577**		**1,443.688**

Remarks:

DDG 1002 Total Ship Computing Environment (TSCE) reflects $7M reduction as a result of the PB18 congressional mark.

Due to schedule delays experienced on DDG 1000 and DDG 1001, Mission Systems Activation (MSA) costs have increased.

PB20 includes additional $15.5M for DDG 1000 Class Interim Spares.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2119 / DDG 1000

Hull, Mechanical, and Electrical (HM&E)	FY 2007		FY 2009	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items				
MAIN TURBINE GENERATOR (MTG)	4	84.797	2	39.412
P-35 Items Subtotal		**84.797**		**39.412**
Major Items				
BATTLE SPARES (MTG)		32.168		-
RIGID HULL INFLATABLE BOAT (RHIB)	4	2.100	2	1.100
Major Items Subtotal		**34.268**		**1.100**
Other Cost Elements				
HM&E (NGVLA, Moriah Wind Measurement System (WMS), Aviation Integration)		68.492		12.446
MISSION SYSTEM ACTIVATION		18.781		16.390
INTERIM SPARES		35.818		7.500
Other Cost Elements Subtotal		**123.091**		**36.336**
Total Hull, Mechanical, and Electrical (HM&E)		**242.156**		**76.848**

Remarks:

During DDG 1001 Acceptance Trials in December 2017, the #1 Main Turbine Generator (MTG) experienced significant damage to the turbine blades. A full engine change-out was required during the summer of 2018 using a Navy spare. The increase associated with the DDG 1001 MTG is the planning and shipyard costs associated with removal, installation and testing.

Negotiated savings on interim spare procurements for DDG 1000/1001 since PB-19 have been applied to increases in electronics.

PB20 includes additional funding for DDG 1002 Interim Spares ($7.5M)

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000

Ordnance	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
P-35 Items				
ADVANCED GUN SYSTEM (AGS)	4	458.711	2	248.596
CLOSE-IN GUN SYSTEM (CIGS)	4	36.151	2	13.795
P-35 Items Subtotal		**494.862**		**262.391**
Major Items				
BATTLE SPARES (AGS)		18.449		-
Major Items Subtotal		**18.449**		**-**
Other Cost Elements				
MISSION SYSTEM ACTIVATION		2.500		2.500
Other Cost Elements Subtotal		**2.500**		**2.500**
Total Ordnance		**515.811**		**264.891**

Remarks:
The reduction to the AGS line is associated with the Navy's decision to lay up the guns until an affordable and capable AGS round is developed.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: EXTERIOR COMMUNICATIONS (EXCOMMS)	**PARM Code:** PEOC4I

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	195.953	1	20.600
Technical Support Services		33.947		6.585
Other / NRE		240.448		52.777
Total	**2**	**470.348**	**1**	**79.962**

Description:

EXCOMMs are part of the DDG-1000 C3I Segment and consists of a set of seven (7) external communications elements. The EXCOMM Elements support the DDG-1000 system in achieving its mission by providing communications between DDG-1000 and other land, air, and sea based platforms as well as pier-side communications. These EXCOMM elements provide the voice, data, and video communications between DDG-1000 and the external world at sea as well as when in port. The 7 elements are: Satellite Communications (SATCOMs), Line of Sight (LOS), Common Data Link-Navy (CDL-N), Information Security (INFOSEC), Common Array Element (CAE), Cooperative Engagement Capability (CEC) and Integrated Communications Controller Software (ICCS). Government legacy systems include: Distributed Common Ground System, Navy (DCGS-N), Cooperative Engagement Capability (CEC), Communication Terminals, AN/WSC-6(V)9 Shipboard Terminal, Common Link Integrated Processor (CLIP), Automated Digital Network System (ADNS), Global Broadcast Service (GBS), Communications Data Link System (CDLS), & Naval Modular Automated Communications System (NAVMACS).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	97.977
FY 2009	DDG 1002	Raytheon	C/CPIF	May 2012		1	20.600

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	43	26	Dec 2013
FY 2009	DDG 1002	Sep 2022	43	26	Dec 2016

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: INTEGRATED UNDERSEA WARFARE (IUSW) SYSTEM	**PARM Code:** IWS 5.0 XR

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	95.829	1	54.300
Technical Support Services		11.293		5.639
Other / NRE		109.141		45.197
Total	**2**	**216.263**	**1**	**105.136**

Description:

The IUSW suite supports DDG-1000 in achieving Undersea and Surface Dominance with the capability to detect and track hostile surface vessels, submarines, and moored volume mines. It supports the Sensor Systems Segment in accomplishing its Integrated Air and Surface Dominance (IASD) and Integrated Undersea Dominance (IUSD) objectives by providing the capability to conduct Anti-Submarine Warfare (ASW), Torpedo Defense (TD) and Mine Warfare (MIW) missions. Military Operations Other than War (MOOTW) objectives, such as Search and Rescue (SAR) (locating downed aircraft and vessels in the ocean) are also supported. There are four major subcomponents: Bow Array Component, Towed Array Component, Towed Torpedo Countermeasures Component, as well as software.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	47.915
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	54.300

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	47	18	Apr 2014
FY 2009	DDG 1002	Sep 2022	46	18	May 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: MULTI FUNCTION RADAR (MFR)	**PARM Code:** IWS 2.0 SQ

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	314.313	1	189.573
Technical Support Services		21.993		11.145
Other / NRE		183.303		97.281
Total	**2**	**519.609**	**1**	**297.999**

Description:

The Multi Function Radar (MFR) element supports the DDG-1000 system in achieving Integrated Air and Surface Dominance with the capability to neutralize hostile surface vessels and aircraft at short ranges. The MFR is comprised of X-Band (AN/SPY-3) arrays integrated through a common signal data processor offering surface and horizon search capabilities and 3-D air search radar capabilities. The X-Band portion also has two navigation modes (high power and lower power) for use in piloting and marine navigation.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	Mar 2008		2	157.157
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	189.573

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	45	28	Aug 2013
FY 2009	DDG 1002	Sep 2022	36	28	May 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: COMMON ARRAY POWER SYSTEM (CAPS)	**PARM Code:** IWS 2.0 SQ

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	56.185	1	12.624
Battle Spares		1.000		-
Technical Support Services		4.490		0.420
Other / NRE		35.342		3.365
Total	**2**	**97.017**	**1**	**16.409**

Description:

The Common Array Power System (CAPS) provides electrical power for the Multi Function Radar (MFR), Identification of Friend or Foe (IFF), EW/Cryptology and External Communications (EXCOMMs) Elements. The CAPS is a distributed power system designed to operate from the ship-supplied medium voltage distribution Integrated Power System's (IPS) 13.8 kV AC power source. The CAPS consists of two Power Distribution Units (PDUs) and four Power Conversion Units (PCUs).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	Mar 2008		2	28.093
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	12.624

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	48	28	May 2013
FY 2009	DDG 1002	Sep 2022	35	28	Jun 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: TOTAL SHIP COMPUTING ENVIRONMENT (TSCE)	**PARM Code:** IWS 9.0 XV

P-35 Category	FY 2007		FY 2009	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	196.450	1	147.453
Technical Support Services		21.834		10.499
Other / NRE		164.307		101.239
Total	**2**	**382.591**	**1**	**259.191**

Description:

The Total Ship Computing Environment (TSCE) Segment provides all computing resources and associated software to the DDG-1000 System. It is a single computing environment for Ship, Combat and Support Systems. The TSCE provides a common middleware platform upon which all application/functional software can build and execute. The segment applications software, combined with TSCE hardware and software infrastructure represent the majority of the computing resources and associated software for the DDG-1000 System.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	98.225
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		1	147.453

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	48	21	Dec 2013
FY 2009	DDG 1002	Sep 2022	43	21	May 2017

Competition/Second Source Initiatives:

N/A

Remarks:

Increased costs have been experienced on the DDG 1000 due to first of class technical issues and schedule delays.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: ELECTRO-OPTICAL / INFRARED (EO/IR)	**PARM Code:** IWS 2.0 SJ

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	33.368	1	12.973
Technical Support Services		6.900		1.551
Other / NRE		54.143		16.928
Total	**2**	**94.411**	**1**	**31.452**

Description:

The Electro-Optical / Infrared (EO/IR) Sensor Suite Element is composed of both the hardware and software components required to detect and range on specified targets and report track data to C2. The EO/IR sensor suite consists of five (5) gimbaled EO sensors located on the cardinal faces of the deckhouse and associated electronics in Electronic Modular Enclosures (EMEs). Also included are Detect and Tracking Software components that provide embedded control and generate tracks for the C2 system and Mine Like Object (MLO) detection algorithm.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	16.684
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	12.973

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	47	22	Dec 2013
FY 2009	DDG 1002	Sep 2022	41	22	Jun 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: IDENTIFICATION FRIEND OR FOE (IFF)	**PARM Code:** NAVAIR

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	16.018	1	8.640
Technical Support Services		2.186		2.163
Other / NRE		17.328		17.335
Total	**2**	**35.532**	**1**	**28.138**

Description:

Identification Friend or Foe (IFF) sensor element supports the DDG-1000 Ship System segment in accomplishing Anti-Air Warfare (AAW) and Anti-Surface Warfare (ASUW) missions. The IFF Sensor Element is a cooperative "challenge and reply" system that assists in the rapid identification, tracking and control of friendly platforms. IFF is comprised of three hardware components to include the Interrogator component, the Transponder component and the Electronically Scanned Antenna (ESA) component, as well as software.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	8.009
FY 2009	DDG 1002	Raytheon	C/CPIF	Dec 2012		1	8.640

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	40	29	Dec 2013
FY 2009	DDG 1002	Sep 2022	33	29	Jul 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: COMMON ARRAY COOLING SYSTEM (CACS)	**PARM Code:** IWS 2.0 SQ

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	11.766	1	-
Battle Spares		1.000		-
Technical Support Services		0.824		0.107
Other / NRE		6.475		0.858
Total	**2**	**20.065**	**1**	**0.965**

Description:

The Common Array Cooling System (CACS) provides liquid cooling for the Multi Function Radar (MFR) and External Communications (EXCOMMs) arrays. CACS is a distributed cooling system consisting of three Cooling Equipment Units (CEUs). Each CEU operates an independent coolant loop used to transport, monitor and control coolant flow to the DBR and EXCOMMs Equipment. CEUs consist of redundant pumps, a heat exchanger and filtration system. It is designed to provide liquid coolant to the MFR and EXCOMM equipment and dissipate heat to the ship-supplied chilled water.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	5.883
FY 2009	DDG 1002	Raytheon	C/CPIF	Nov 2012		1	0.000

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	49	28	Apr 2013
FY 2009	DDG 1002	Sep 2022	35	28	Jun 2017

Competition/Second Source Initiatives:

N/A

Remarks:

CACS Technical Services are incorporated into DBR Technical Services. DDG 1002 CACS costs are included in the DDG 1002 MFR value.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: SHIP CONTROL SYSTEM (SCS)	**PARM Code:** SPAWAR

P-35 Category	FY 2007		FY 2009	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	58.000	1	42.801
Technical Support Services		6.031		8.256
Other / NRE		47.496		66.172
Total	**2**	**111.527**	**1**	**117.229**

Description:

The Flight 1 Ship Control System (SCS) element is a system of hardware and software items that provide hierarchical and integrated ship control by the DDG-1000 crew. The SCS software architecture allows for various levels of automation for monitoring, control, reporting and configuration of SCS equipment and operations to support mission and low manning concepts. From workstation positions on the ship bridge or in the ship mission centers, the SCS coordinates, controls and monitors the navigation, hull, electric plant, machinery plant and damage control functions on the DDG-1000.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		2	29.000
FY 2009	DDG 1002	Raytheon	C/CPIF	May 2012		1	42.801

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	38	31	Dec 2013
FY 2009	DDG 1002	Sep 2022	38	31	Dec 2016

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	**PARM Code:** IWS 6.0 XN

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	12.000	1	6.800
Technical Support Services		4.025		1.000
Total	**2**	**16.025**	**1**	**7.800**

Description:

Cooperative Engagement Capability (CEC) is a sensor network with Integrated Fire Control capability that significantly improves Battle Force air and missile defense capabilities by coordinating measurement data from Battle Force air search sensors on CEC-equipped units into a single, real-time, composite cooperating unit (CU), to all other CUs in the Battle Force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate grid locking (relative spatial positioning) between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a high quality track picture which is the same for all CUs. CEC data is presented as a superset of the best air and missile defense sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapon system. CEC significantly improves Battle Force defense in depth, including both local and area defense capabilities against current and future air missile threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Raytheon	C/FPIF	Feb 2007		2	6.000
FY 2009	DDG 1002	Raytheon	C/FPIF	Oct 2013		1	6.800

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	34	18	May 2015
FY 2009	DDG 1002	Sep 2022	34	18	May 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: SURFACE ELECTRONIC WARFARE IMPROVEMENT PROGRAM (SEWIP)	**PARM Code:** IWS 2.0 SJ

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	2	36.214	1	15.906
Technical Support Services		2.406		0.935
Other / NRE		1.622		0.841
Total	**2**	**40.242**	**1**	**17.682**

Description:

SEWIP provides enhanced Electronic Warfare (EW) capabilities to improve anti-ship missile defense, counter-targeting and counter surveillance capabilities, as well as improved situational awareness to pace the threat, improving detection, accuracy, and mitigation of EMI. The SEWIP Block 2 is an upgraded antenna, receiver and combat system interface for AN/SLQ-32.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Lockheed Martin	C/FPIF	Jul 2012		2	18.107
FY 2009	DDG 1002	Lockheed Martin	C/FPIF	Jan 2015		1	15.906

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	2	19	Dec 2017
FY 2009	DDG 1002	Sep 2022	2	16	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000

Equipment Item: VERTICAL LAUNCHING SYSTEM (VLS) MK 57 4-CELL MODULES | **PARM Code:** IWS 3L S8

P-35 Category	FY 2007		FY 2009	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	40	180.987	20	234.670
Technical Support Services		9.029		4.231
Other / NRE		86.766		63.914
Total	**40**	**276.782**	**20**	**302.815**

Description:

The MK 57 VLS is a general purpose, operationally unmanned launching system capable of stowing, preparing, and launching missiles in support of DDG-1000 mission areas including: land attack warfare, integrated air and surface dominance, and integrated undersea dominance. The MK57 VLS provides the capability for rapid launch of missiles into a 360-degree hemispherical volume above and about the ship. The canistered missiles are stowed within the launching systems below-deck cells. DDG-1000 will have 80 total cells grouped into 20 four cell modules. Flight 1 missiles to be carried include: Enhanced Sea Sparrow Missile (ESSM), Standard Missile-2 (SM-2) Blk III, Tomahawk Land Attack Missile (TLAM) Blk III/IV, and Vertical Launch Anti-Submarine Rocket (VLA).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2007	DDG 1000	Raytheon	C/CPIF	May 2008		40	4.525
FY 2009	DDG 1002	Raytheon	C/CPIF	Oct 2012		20	11.734

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	40	24	May 2014
FY 2009	DDG 1002	Sep 2022	40	24	May 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: MAIN TURBINE GENERATOR (MTG)	**PARM Code:** PMS 500 WA

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	4	73.262	2	39.412
Technical Support Services		6.126		-
Other / NRE		5.409		-
Total	**4**	**84.797**	**2**	**39.412**

Description:

The Main Turbine Generator Set (MTG) shall be capable of being utilized as the prime power source on the DDG-1000 Destroyer for electrical power applications (propulsion, ship services, and combat systems loads). The DDG-1000 baseline includes two MTGs. The minimum output power from each MTG shall be 35.25 MWe. The engine utilizes a Full Authority Digital Control Local Operating Panel (FADC LOCOP) and electric start system. The generator contains redundant automatic voltage regulators (AVR) with automatic changeover.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	Rolls-Royce	C/FFP	Mar 2007	New	4	18.316
FY 2009	DDG 1002	Rolls-Royce	C/FFP	Jan 2008	Option	2	19.706

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	33	24	Dec 2014
FY 2009	DDG 1002	Sep 2022	33	24	Dec 2017

Competition/Second Source Initiatives:

N/A

Remarks:

During DDG 1001 Acceptance Trials in December 2017, the #1 Main Turbine Generator (MTG) experienced significant damage to the turbine blades. A full engine change out was required during the summer of 2018 using a Navy spare. The increase associated with the DDG 1001 MTG is the planning and shipyard costs associated with removal, installation and testing.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: ADVANCED GUN SYSTEM (AGS)	**PARM Code:** IWS 3C YF

P-35 Category	FY 2007		FY 2009	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	4	298.654	2	206.747
Technical Support Services		14.500		3.860
Other / NRE		145.557		37.989
Total	**4**	**458.711**	**2**	**248.596**

Description:

The Advanced Gun System is a fully automated, single barrel, 155mm, vertically loaded, stabilized gun mount that is capable of storing, initializing/programming, loading and firing projectiles and propelling charges. Its primary mission is Land Attack Warfare in support of ground and expeditionary forces beyond the Line of Sight in the DDG-1000 system's littoral engagement area where precise, rapid-response, high-volume, long-range fire support is required. Each DDG-1000 will carry two complete AGS systems - Mount 61 and 62. The above deck configurations are identical but each has a slightly different below deck configuration.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2007	DDG 1000	BAE	C/CPIF	Apr 2008		4	74.664
FY 2009	DDG 1002	BAE	C/CPIF	Apr 2012		2	103.374

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	31	39	Nov 2013
FY 2009	DDG 1002	Sep 2022	31	39	Nov 2016

Competition/Second Source Initiatives:

N/A

Remarks:

The reduction to the AGS line is associated with the Navy's decision to lay up the guns until an affordable and capable AGS round is developed.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2119 / DDG 1000
Equipment Item: CLOSE-IN GUN SYSTEM (CIGS)	**PARM Code:** IWS 3C YF

P-35 Category	FY 2007 Qty (Each)	FY 2007 Total Cost ($ M)	FY 2009 Qty (Each)	FY 2009 Total Cost ($ M)
Major Hardware	4	16.034	2	7.534
Technical Support Services		7.177		3.381
Other / NRE		12.940		2.880
Total	**4**	**36.151**	**2**	**13.795**

Description:

The Close-In Gun System (CIGS) supports the DDG-1000 system in achieving Integrated Air and Surface Dominance with the capability to neutralize hostile surface vessels and aircraft at short ranges. CIGS also supports the Military Operations Other than War (MOOTW) missions, such as performing maritime interdiction, conducting maritime law enforcement, and supporting hostage rescue. Two (2) CIGS will be mounted on the aft end of the hanger. The CIGS MK 46 MOD 2 GWS is composed of a turret assembly that houses the MK 44 MOD 2 cannon and an advanced Fire Control System that includes a ballistic solution computer, an electro-optical sensor package, and an eye-safe laser range finder. The system uses a forward-looking infrared sensor, a low-light television camera, and eye safe laser range finder with a closed-loop tracking system to optimize accuracy against small, high-speed surface targets. The system can be operated locally from the gun control station inside the turret, remotely from the MK 46 MOD 2 GWS Remote Gun Station Operator (RGSO) panel in the Combat Information Center (CIC), or manually using hand cranks from inside the turret. The 30mm cannon, MK 44 MOD 2, is a single barrel, open bolt, dual feed, electrically powered, chain-driven automatic cannon. The system has a magazine capacity of 424 rounds, a dual-feed capability with a firing rate of 200 rounds per minute, and is capable of selectively switching between ammunition types and firing modes.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2007	DDG 1000	General Dynamics Land Systems	C/FFP	Jan 2015		4	4.008
FY 2009	DDG 1002	General Dynamics Land Systems	C/FFP	Mar 2016		2	3.767

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2007	DDG 1000	Sep 2019	6	22	May 2017
FY 2009	DDG 1002	Sep 2022	6	18	Sep 2020

Competition/Second Source Initiatives:

N/A

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2122 / DDG-51
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	77	2	3	3	-	3	2	2	3	3	2	97
Gross/Weapon System Cost *($ in Millions)*	80,651.776	3,357.079	5,289.199	5,462.955	0.000	5,462.955	3,740.843	3,854.254	5,675.392	5,607.774	4,328.900	117,968.172
Less PY Advance Procurement *($ in Millions)*	2,911.519	-	-	-	-	-	-	-	-	-	-	2,911.519
Less Cost To Complete *($ in Millions)*	1,198.862	-	-	-	-	-	-	-	-	-	-	1,198.862
Less Subsequent Year Full Funding *($ in Millions)*	433.000	-	-	-	-	-	-	-	-	-	-	433.000
Less Hurricane *($ in Millions)*	227.100	-	-	-	-	-	-	-	-	-	-	227.100
Less EOQ *($ in Millions)*	421.584	-	39.362	363.660	-	363.660	276.635	276.635	-	168.500	525.900	2,072.276
Less Escalation *($ in Millions)*	48.200	-	-	-	-	-	-	-	-	-	-	48.200
Less Transfer *($ in Millions)*	218.500	-	-	-	-	-	-	-	-	-	-	218.500
Net Procurement (P-1) *($ in Millions)*	75,193.011	3,357.079	5,249.837	5,099.295	0.000	5,099.295	3,464.208	3,577.619	5,675.392	5,439.274	3,803.000	110,858.715
Plus Subsequent Year Full Funding *($ in Millions)*	433.000	-	-	-	-	-	-	-	-	-	-	433.000
Full Funding TOA *($ in Millions)*	75,626.011	3,357.079	5,249.837	5,099.295	-	5,099.295	3,464.208	3,577.619	5,675.392	5,439.274	3,803.000	111,291.715
Plus CY Advance Procurement *($ in Millions)*	3,333.103	-	-	-	-	-	-	-	-	-	-	3,333.103
Plus Cost To Complete *($ in Millions)*	1,050.808	51.377	53.966	-	-	-	19.634	23.077	-	-	-	1,198.862
Plus EOQ *($ in Millions)*	-	90.336	641.928	224.028	-	224.028	-	-	484.400	210.000	-	1,650.692
Plus Escalation *($ in Millions)*	48.200	-	-	-	-	-	-	-	-	-	-	48.200
Plus Transfer *($ in Millions)*	218.500	-	-	-	-	-	-	-	-	-	-	218.500
Plus Hurricane *($ in Millions)*	227.100	-	-	-	-	-	-	-	-	-	-	227.100
Total Obligation Authority *($ in Millions)*	**80,503.722**	**3,498.792**	**5,945.731**	**5,323.323**	**0.000**	**5,323.323**	**3,483.842**	**3,600.696**	**6,159.792**	**5,649.274**	**3,803.000**	**117,968.172**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	2,369.602	67.538	73.025	130.924	-	130.924	110.103	115.498	114.818	117.114	-	3,098.622
Total *($ in Millions)*	**82,873.324**	**3,566.330**	**6,018.756**	**5,454.247**	**-**	**5,454.247**	**3,593.945**	**3,716.194**	**6,274.610**	**5,766.388**	**3,803.000**	**121,066.794**
Gross/Weapon System Unit Cost *($ in Millions)*	1,047.426	1,678.540	1,763.066	1,820.985	-	1,820.985	1,870.422	1,927.127	1,891.797	1,869.258	2,164.450	1,216.167

Description:

DDG 51 will be able to operate offensively and defensively, independently or as units of Carrier Strike Groups and Surface Action Groups, in support of Marine Amphibious Task Forces in multi-threat environments that include air, surface and subsurface threats. These ships will respond to Low Intensity Conflict/Coastal and Littoral Offshore Warfare (LIC/CALOW) scenarios as well as open ocean conflict providing or augmenting power projection and forward presence requirements, and escort operations at sea. FY10 and follow ships will provide Ballistic Missile Defense capability. Starting in FY17, DDG 51 Flight III with the Air and Missile Defense Radar (SPY-6) will significantly enhance Integrated Air and Missile Defense capability against current and future threats. Starting in FY22, Surface Electronic Warfare Improvement Program (SEWIP) Block 3 will provide Electronic Attack (EA) capability improvements against current and future threats.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2122 / DDG-51
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A
Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A	

Note:
(1) The FY18-22 acquisition strategy is a 10 ship Multi-year Procurement (MYP) with options. PB20 reflects savings for those 10 ships associated with EOQ procurement and a MYP strategy. Additional ships in FY19, FY20, FY23, FY24 also reflect quantity savings over annual ship prices.

Characteristics:	**FLIGHT IIA**	**FLIGHT III**
Length Overall	509 ft	509 ft
Beam	59 ft	59 ft
Displacement	9217 TONS	9650 TONS
Draft	-	

Production Status:	**DDG 118** (1)	**DDG 120**	**DDG 119**	**DDG 121**	**DDG 122**	**DDG 123**	**DDG 124**
Contract Award Date	Jun 2013	Mar 2014	Jun 2013	Jun 2013	Jun 2013	Jun 2013	Jun 2013
Months to Completion							
a) Award to Delivery	82 months	82 months	76 months	85 months	100 months	97 months	108 months
b) Construction Start to Delivery	56 months	52 months	51 months	51 months	49 months	54 months	47 months
Delivery Date	Apr 2020	Jan 2021	Oct 2019	Jul 2020	Oct 2021	Jul 2021	Jun 2022
Completion Of Fitting Out	Aug 2020	May 2021	Feb 2020	Dec 2020	Feb 2022	Nov 2021	Oct 2022
Obligation Work Limit Date	Jul 2021	Apr 2022	Jan 2021	Nov 2021	Jan 2023	Oct 2022	Sep 2023

Production Status:	**DDG 127**	**DDG 125** (2)	**DDG 126** (3)	**DDG 128**	**DDG 129**	**DDG 130**	**DDG 131**
Contract Award Date	Sep 2017	Jun 2013	Jun 2013	Sep 2018	Sep 2018	Sep 2018	Sep 2018
Months to Completion							
a) Award to Delivery	62 months	118 months	132 months	73 months	82 months	82 months	91 months
b) Construction Start to Delivery	52 months	59 months	62 months	52 months	50 months	60 months	49 months
Delivery Date	Nov 2022	Apr 2023	Jun 2024	Oct 2024	Jul 2025	Jul 2025	Apr 2026
Completion Of Fitting Out	Mar 2023	Aug 2023	Oct 2024	Feb 2025	Nov 2025	Nov 2025	Aug 2026
Obligation Work Limit Date	Feb 2024	Jul 2024	Sep 2025	Jan 2026	Oct 2026	Oct 2026	Jul 2027

Production Status:	**DDG 132**	**DDG 134**	**DDG 133**	**DDG 135** (4)
Contract Award Date	Dec 2018	Sep 2018	Sep 2018	Jun 2020
Months to Completion				
a) Award to Delivery	89 months	98 months	98 months	81 months
b) Construction Start to Delivery	59 months	55 months	49 months	52 months
Delivery Date	May 2026	Nov 2026	Nov 2026	Mar 2027
Completion Of Fitting Out	Sep 2026	Mar 2027	Mar 2027	Aug 2027
Obligation Work Limit Date	Aug 2027	Feb 2028	Feb 2028	Jul 2028

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Jun 1983	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Mar 1982	Dec 1982		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2122 / DDG-51	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Contract Design	May 1983	Jun 1984		
Detail Design	N/A	N/A		
Request for Proposals	N/A	N/A		
Design Agent	BIW			

Classification of Cost Estimate: CLASS C BUDGET ESTIMATE

Footnotes:

(1) DDG 118 - DDG 124 reflects actual and contract milestone dates based on ship production progress.

(2) DDG 125 reflects actual and contract milestone dates based on ship production progress.

(3) DDG 126- DDG 134 reflects contract milestone dates.

(4) DDG 135 Reflects notional dates

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

Cost Categories (†) indicates the presence of a P-8a	FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Plan Costs	3	67.450	1	74.980	2	68.814	3	204.160	2	81.454	2	72.811	3	74.195	3	75.713
Basic Construction/Conversion		2,188.286		718.189		1,463.210		2,262.084		1,662.382		1,749.226		2,796.814		2,918.944
Change Orders		60.461		21.087		42.133		122.000		41.307		53.196		83.164		85.974
Electronics (†)		544.024		226.095		349.746		533.916		346.044		379.000		576.510		607.388
Hull, Mechanical, and Electrical (HM&E) (†)		191.246		91.207		159.533		223.907		150.636		161.600		224.300		226.260
Ordnance (†)		1,176.955		523.108		838.247		1,469.584		1,008.587		865.400		1,457.000		1,467.208
Other Cost		81.240		76.736		77.775		73.033		73.971		75.846		77.216		81.468
Total Ship Estimate		**4,309.662**		**1,731.402**		**2,999.458**		**4,888.684**		**3,364.381**		**3,357.079**		**5,289.199**		**5,462.955**
Less Advance Procurement FY 2012		92.454		-		-		-		-		-		-		-
Less Advance Procurement FY 2015		-		-		-		134.039		-		-		-		-
Less Subsequent Full Funding FY 2017		-		-		-		433.000		-		-		-		-
Less Cost to Complete FY 2014		100.000		-		-		-		-		-		-		-
Less Cost to Complete FY 2018		31.941		-		-		-		-		-		-		-
Less Cost to Complete FY 2019		53.966		-		-		-		-		-		-		-
Less Cost to Complete FY 2021		-		-		19.634		-		-		-		-		-
Less Cost to Complete FY 2022		-		-		23.077		-		-		-		-		-
Less EOQ FY 2013		-		115.838		224.851		108.345		13.677		-		-		-
Less EOQ FY 2014		-		-		69.989		130.650		168.912		-		-		-
Less EOQ FY 2018		-		-		-		-		-		-		39.362		25.940
Less EOQ FY 2019		-		-		-		-		-		-		-		337.720
Net P-1 Funding		**4,031.301**		**1,615.564**		**2,661.907**		**4,082.650**		**3,181.792**		**3,357.079**		**5,249.837**		**5,099.295**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1		P-1 Line Item Number / Title: 2122 / DDG-51			
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
DDG 118 (1)	Bath Iron Works	2013	Jun 2013	Aug 2015	Apr 2020
DDG 120	Bath Iron Works	2013	Mar 2014	Sep 2016	Jan 2021
DDG 119	Huntington Ingalls Industries	2014	Jun 2013	Jul 2015	Oct 2019
DDG 121	Huntington Ingalls Industries	2015	Jun 2013	Apr 2016	Jul 2020
DDG 122	Bath Iron Works	2015	Jun 2013	Sep 2017	Oct 2021
DDG 123	Huntington Ingalls Industries	2016	Jun 2013	Jan 2017	Jul 2021
DDG 124	Bath Iron Works	2016	Jun 2013	Jul 2018	Jun 2022
DDG 127	Bath Iron Works	2016	Sep 2017	Jul 2018	Nov 2022
DDG 125 (2)	Huntington Ingalls Industries	2017	Jun 2013	May 2018	Apr 2023
DDG 126 (3)	Bath Iron Works	2017	Jun 2013	Apr 2019	Jun 2024
DDG 128	Huntington Ingalls Industries	2018	Sep 2018	Jun 2020	Oct 2024
DDG 129	Huntington Ingalls Industries	2018	Sep 2018	May 2021	Jul 2025
DDG 130	Bath Iron Works	2019	Sep 2018	Jul 2020	Jul 2025
DDG 131	Huntington Ingalls Industries	2019	Sep 2018	Mar 2022	Apr 2026
DDG 132	Bath Iron Works	2019	Dec 2018	Jun 2021	May 2026
DDG 134	Bath Iron Works	2020	Sep 2018	Apr 2022	Nov 2026
DDG 133	Huntington Ingalls Industries	2020	Sep 2018	Oct 2022	Nov 2026
DDG 135 (4)	TBD	2020	Jun 2020	Nov 2022	Mar 2027
DDG 136 (5)	Bath Iron Works	2021	Sep 2018	Jan 2023	Jun 2027
DDG 137	Huntington Ingalls Industries	2021	Sep 2018	May 2023	Sep 2027
DDG 138	Bath Iron Works	2022	Sep 2018	Aug 2023	Dec 2027
DDG 139	Huntington Ingalls Industries	2022	Sep 2018	Mar 2024	Apr 2028
DDG 140 (6)	TBD	2023	Jun 2023	Jul 2024	Jul 2028
DDG 141	TBD	2023	Jun 2023	Jul 2024	Jul 2028
DDG 142	TBD	2023	Jun 2023	Jan 2025	Jan 2029
DDG 143	TBD	2024	Jun 2023	Jul 2025	Jul 2029
DDG 144	TBD	2024	Jun 2023	Jul 2025	Jul 2029
DDG 145	TBD	2024	Jun 2023	Jan 2026	Jan 2030

Footnotes:

(1) DDG 118 - DDG 124 reflects actual and contract milestone dates based on ship production progress.

(2) DDG 125 reflects actual and contract milestone dates based on ship production progress.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

(3) DDG 126- DDG 134 reflects contract milestone dates.

(4) DDG 135 Reflects notional dates

(5) DDG 136- DDG 139 reflect contract milestone dates.

(6) DDG 140 and follow are notional. Ships reflect notional dates.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2122 / DDG-51

Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
SQQ 89 ASW	2	81.693	3	124.991	3	148.191
AN/SLQ-32 (V)6 SEWIP	2	31.305	3	47.897	3	48.855
USQ 82(V) GEDMS	2	28.232	3	43.196	3	44.060
EXCOMM	2	100.435	3	153.667	3	156.413
AN/UPX 29(V) IFF and TACAN	2	14.552	3	22.265	3	22.710
CEC	2	11.075	3	16.947	3	17.284
P-35 Items Subtotal		**267.292**		**408.963**		**437.513**
Major Items						
NAVIGATION SYSTEM	2	7.866	3	12.035	3	12.274
SLQ 25 NIXIE	2	3.249	3	4.971	3	5.070
SRQ 4 LAMPS III	2	8.699	3	13.310	3	13.575
SSEE/SPECTRAL	2	40.103	3	51.000	3	51.000
MIDS	2	6.769	3	10.356	3	10.563
MK 53 NULKA	2	4.437	3	6.789	3	6.926
TSA ANTENNA	2	3.534	3	5.408	3	5.515
Major Items Subtotal		**74.657**		**103.869**		**104.923**
Other Cost Elements						
MISC. ELECTRONICS	2	37.051	3	63.678	3	64.952
Other Cost Elements Subtotal		**37.051**		**63.678**		**64.952**
Total Electronics		**379.000**		**576.510**		**607.388**

Remarks:
FY20 reflects the addition of the Multi-Function Towed Array (MFTA) sensor along with the Handling and Stowage Gear (H&SG) as part of in-line construction of new DDG-51 class ships.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
P-35 Items						
STC 3 IVCS	2	15.227	3	23.298	3	23.765
Main Reduction Gear	2	74.620	3	114.168	3	116.451
P-35 Items Subtotal		**89.847**		**137.466**		**140.216**
Major Items						
Machinery Control System	2	10.622	3	16.251	3	16.576
Integrated Bridge Navigation System	2	9.164	3	14.021	3	14.301
CYBER BDC	2	7.600	3	11.300	3	9.000
Major Items Subtotal		**27.386**		**41.572**		**39.877**
Other Cost Elements						
MISC. HM&E	2	44.367	3	45.262	3	46.167
Other Cost Elements Subtotal		**44.367**		**45.262**		**46.167**
Total Hull, Mechanical, and Electrical (HM&E)		**161.600**		**224.300**		**226.260**

Remarks:

FY18 and future years include the introduction of the Boundary Defense Capability (BDC) and cyber Situational Awareness (SA) capability for core H,M&E systems on new construction DDG-51 ships. FY18 and FY19 Cyber BDC includes efforts for cabinet qualifications, Technical Data Package (TDP) updates, and installation support services for implementation in DDG 51 new construction.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

Ordnance	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
AEGIS WEAPON SYSTEM (MK-7)	2	267.267	3	390.356	3	398.163
AN/SPY-6 (AMDR)	1	198.103	3	499.466	3	497.700
VLS MK 41	2	106.748	3	163.190	3	166.454
MK 45 Light Weight Gun (LWG)	2	52.880	3	80.907	3	82.526
MK 37 TOMAHAWK	2	26.003	3	39.785	3	40.580
PHALANX (CIWS)	2	16.901	3	25.859	3	26.376
SPQ-9B Radar	2	19.105	3	29.231	3	29.816
P-35 Items Subtotal		**687.007**		**1,228.794**		**1,241.615**
Major Items						
MK 32 Surface Vessel Torpedo Tubes (SVTT)	2	6.101	3	9.335	3	9.520
ELECTRO-OPTICAL SYSTEM	2	6.456	3	9.878	3	10.075
MK 160 Gun Fire Control System (GFCS)	2	6.714	3	10.272	3	10.477
Major Items Subtotal		**19.271**		**29.485**		**30.072**
Other Cost Elements						
MISC. ORDNANCE	2	159.122	3	198.721	3	195.521
Other Cost Elements Subtotal		**159.122**		**198.721**		**195.521**
Total Ordnance		**865.400**		**1,457.000**		**1,467.208**

Remarks:
$142 million was removed in FY 18 due to an additional AMDR shipset from the FY 16 ships (not Flight IIA) that was excess to need in FY 16. This shipset will be installed on one of the FY 18 ships.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: SQQ 89 ASW	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	47.373	3	72.480	3	94.629
Spares		1.008		1.542		1.573
System Engineering		8.460		12.944		13.203
Technical Engineering Services		4.913		7.518		7.668
Other Costs		19.939		30.507		31.118
Total	**2**	**81.693**	**3**	**124.991**	**3**	**148.191**

Description:

Detect, classify, localize and track submerged submarines under all environmental conditions at long range from ASW ships, using bottom reflected and convergence zone acoustic paths. Starting in FY20, the Multi-Function Towed Array (MFTA) sensor along with the Handling and Stowage Gear (H&SG) is included as part of in-line construction of new DDG-51 class ships.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	LOCKHEED MARTIN	C/FFP	Sep 2018	Option	2	23.687
FY 2019	DDG 130	LOCKHEED MARTIN	C/FFP	Mar 2019	Option	3	24.160
FY 2020	DDG 133	LOCKHEED MARTIN	C/FFP	Mar 2020	Option	3	31.543

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	26	24	Aug 2020
FY 2019	DDG 130	Jul 2025	26	24	May 2021
FY 2020	DDG 133	Nov 2026	26	24	Sep 2022

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: AN/SLQ-32 (V)6 SEWIP	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	26.611	3	40.715	3	41.529
Spares		0.757		1.158		1.182
System Engineering		1.836		2.810		2.865
Technical Engineering Services		0.267		0.408		0.417
Other Costs		1.834		2.806		2.862
Total	**2**	**31.305**	**3**	**47.897**	**3**	**48.855**

Description:

SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP) provides the DDG 51 Class Destroyers with the electronic warfare capability of automatically detecting, sorting, classifying, tracking, engaging and continually displaying emitter and platform densities.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	LM/GD-AIS	C/FFP	Mar 2018	Option	2	13.306
FY 2019	DDG 130	LM/GD-AIS	C/FFP	Mar 2019	Option	3	13.572
FY 2020	DDG 133	COMPETITIVE	C/FFP	Mar 2020	New	3	13.843

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	28	16	Feb 2021
FY 2019	DDG 130	Jul 2025	28	16	Nov 2021
FY 2020	DDG 133	Nov 2026	28	16	Mar 2023

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: USQ 82(V) GEDMS	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	15.101	3	23.105	3	23.567
Technical Data and Documentation		1.343		2.055		2.096
System Engineering		3.255		4.980		5.081
Technical Engineering Services		0.549		0.840		0.856
Other Costs		7.984		12.216		12.460
Total	**2**	**28.232**	**3**	**43.196**	**3**	**44.060**

Description:

Gigabit Ethernet Data Multiplex System (GEDMS) is the mission critical ship-wide network that transfers data associated with Machinery, Steering, Navigation, Combat, Alarms & Indicating, and Damage Control Systems. It is a general purpose modular data transfer system that provides high speed, reliable and survivable data from source systems to user systems automatically or on demand.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	BOEING/DRS	C/FFP	Jan 2018	Option	2	7.551
FY 2019	DDG 130	BOEING/DRS	C/FFP	Mar 2019	Option	3	7.702
FY 2020	DDG 133	BOEING/DRS	C/FFP	Mar 2020	Option	3	7.856

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	25	16	May 2021
FY 2019	DDG 130	Jul 2025	25	16	Feb 2022
FY 2020	DDG 133	Nov 2026	25	16	Jun 2023

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: EXCOMM	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	60.043	3	91.866	3	93.508
Technical Data and Documentation		0.240		0.368		0.375
Spares		0.554		0.848		0.863
System Engineering		6.249		9.561		9.732
Technical Engineering Services		3.647		5.580		5.679
Other Costs		11.808		18.066		18.389
Assembly & Integration		17.894		27.378		27.867
Total	**2**	**100.435**	**3**	**153.667**	**3**	**156.413**

Description:

The Exterior Communication System (EXCOMM) provides voice, data, teletypewriter (TTY), continuous wave (CW), and other communication services on designated frequencies from VLF to UHF for tactical and record requirements. It includes all external radio communication devices aboard the ship.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	VARIOUS	Various	Various	Various	2	30.022
FY 2019	DDG 130	VARIOUS	Various	Various	Various	3	30.622
FY 2020	DDG 133	VARIOUS	Various	Various	Various	3	31.169

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	15	24	Jul 2021
FY 2019	DDG 130	Jul 2025	15	24	Apr 2022
FY 2020	DDG 133	Nov 2026	15	24	Aug 2023

Competition/Second Source Initiatives:

Numerous contract arrangements (sole source/competitive)

Remarks:

There are numerous components and contracts resulting in various award dates.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: AN/UPX 29(V) IFF and TACAN	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	12.510	3	19.140	3	19.522
Spares		0.157		0.240		0.244
System Engineering		0.758		1.160		1.184
Technical Engineering Services		0.319		0.489		0.498
Other Costs		0.808		1.236		1.262
Total	**2**	**14.552**	**3**	**22.265**	**3**	**22.710**

Description:

The UPX-29 Interrogator System is a centralized Mark XIIA interrogator and target processor. It employs a cooperative challenge and reply technique to positively identify friendly platforms. The system is capable of interrogating Mark XII, Mark XIIA, International Civil Aviation Organization (ICAO), or Federal Aviation Administration (FAA)-compliant IFF transponders using a standard shipboard interrogator set, a target processor, and an Electronically Steerable Antenna (ESA) system. TACAN is a navigational beacon system that provides azimuth, slant range, and station identification information to TACAN equipped aircraft, permitting 24/7, all weather landing operations.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	BAE	SS/FFP	Jan 2019	New	2	6.255
FY 2019	DDG 130	BAE	SS/FFP	Jan 2019	Option	3	6.380
FY 2020	DDG 133	BAE	SS/FFP	Jul 2020	Option	3	6.507

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	26	24	Aug 2020
FY 2019	DDG 130	Jul 2025	26	24	May 2021
FY 2020	DDG 133	Nov 2026	26	24	Sep 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: CEC	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	9.485	3	14.513	3	14.802
System Engineering		0.486		0.744		0.759
Technical Engineering Services		0.348		0.533		0.543
Other Costs		0.756		1.157		1.180
Total	**2**	**11.075**	**3**	**16.947**	**3**	**17.284**

Description:

Cooperative Engagement Capability (CEC) is a sensor netting system which distributes sensor data from each CEC equipped ship, aircraft, and/or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	DRS	C/FFP	Jul 2018	Option	2	4.743
FY 2019	DDG 130	DRS	C/FFP	Mar 2019	Option	3	4.838
FY 2020	DDG 133	DRS	C/FFP	Mar 2020	Option	3	4.934

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	25	18	Mar 2021
FY 2019	DDG 130	Jul 2025	25	18	Dec 2021
FY 2020	DDG 133	Nov 2026	25	18	Apr 2023

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: STC 3 IVCS	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	9.798	3	14.991	3	15.292
Spares		0.529		0.810		0.825
System Engineering		1.842		2.819		2.874
Technical Engineering Services		0.470		0.719		0.734
Other Costs		2.588		3.959		4.040
Total	**2**	**15.227**	**3**	**23.298**	**3**	**23.765**

Description:

A solid state integrated voice communication system (IVCS) for application with the AEGIS combat system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	DRS	C/FFP	Aug 2018	Option	2	4.899
FY 2019	DDG 130	DRS	C/FFP	Jul 2019	Option	3	4.997
FY 2020	DDG 133	DRS	C/FFP	Jul 2020	Option	3	5.097

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	31	12	Mar 2021
FY 2019	DDG 130	Jul 2025	31	12	Dec 2021
FY 2020	DDG 133	Nov 2026	31	12	Apr 2023

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: Main Reduction Gear	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	68.432	3	108.088	3	110.014
System Engineering		-		-		-
Technical Engineering Services		6.188		6.080		6.437
Total	**2**	**74.620**	**3**	**114.168**	**3**	**116.451**

Description:

The contractor will engineer, manufacture, test and deliver a fully operational DDG 51 Main Reduction Gear (MRG). A DDG 51 Class MRG shipset consists of two gear assemblies. Each reduction gear combines the input of two LM2500 engines to convert the high speed, low torque of the engine to low speed, high torque output suitable to drive the propulsion shafting, and the related support systems and equipment.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	TIMKEN	C/FFP	May 2018	Option	2	34.216
FY 2019	DDG 130	TIMKEN	C/FFP	Mar 2019	Option	3	36.029
FY 2020	DDG 133	TIMKEN	C/FFP	Mar 2020	Option	3	36.671

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	32	32	Jun 2019
FY 2019	DDG 130	Jul 2025	32	32	Mar 2020
FY 2020	DDG 133	Nov 2026	32	32	Jul 2021

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: AEGIS WEAPON SYSTEM (MK-7)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	156.763	3	227.855	3	232.412
System Engineering		1.768		2.705		2.759
Technical Engineering Services		1.664		2.546		2.597
Other Costs		12.882		13.140		13.402
Logistics Support		20.214		30.927		31.546
Combat System Integration		73.976		113.183		115.447
Total	**2**	**267.267**	**3**	**390.356**	**3**	**398.163**

Description:

AEGIS is a fast reaction, high firepower, all weather weapon system incorporating a high degree of system availability and effectiveness. It consists of a multi-function phase/plane array radar, high powered illuminators, advanced missile guidance and fully digitizalized and integrated combat ship control for radar, weapons and command and decision. An Operational Readiness Test System performs continuous on-line assessment and fault detection.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	LM/ RTN/ GD	Various	Mar 2019	New	2	78.382
FY 2019	DDG 130	LM/ RTN/ GD	Various	Mar 2019	Option	3	75.952
FY 2020	DDG 133	LM/ RTN/ GD	Various	Mar 2019	Option	3	77.471

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	20	36	Feb 2020
FY 2019	DDG 130	Jul 2025	20	36	Nov 2020
FY 2020	DDG 133	Nov 2026	20	36	Mar 2022

Competition/Second Source Initiatives:

Multiple contract arrangements (sole source/competitive)

Remarks:

Contract Data Notes:
AWS Antenna and Signal Processors - Contractor: Lockheed Martin
AWS Spy Transmitter and Fire Control System Transmitter - Contractor: Raytheon
AWS Director/Director Controller - Contractor: General Dynamics

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: AN/SPY-6 (AMDR)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	1	136.552	3	396.955	3	401.643
System Engineering		19.792		30.282		30.888
Technical Engineering Services		15.435		23.616		24.089
Other Costs		16.586		33.714		25.884
Logistics		9.738		14.899		15.196
Total	**1**	**198.103**	**3**	**499.466**	**3**	**497.700**

Description:

The AN/SPY-6 Air and Missile Defense Radar (AMDR) suite consists of an S-Band radar (AMDR-S), an X-band radar (via SPQ-9B starting with DDG 119), and a Radar Suite Controller (RSC). AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	RAYTHEON	C/FPIF	Apr 2018	Option	1	136.552
FY 2019	DDG 130	RAYTHEON	C/FPIF	Mar 2019	Option	3	132.318
FY 2020	DDG 133	RAYTHEON	C/FPIF	Dec 2019	Option	3	133.881

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	28	24	Jun 2020
FY 2019	DDG 130	Jul 2025	28	24	Mar 2021
FY 2020	DDG 133	Nov 2026	28	24	Jul 2022

Competition/Second Source Initiatives:

Competitive

Remarks:

$142 million was removed in FY 18 due to an AMDR shipset purchased for an FY16 ship. AMDR is only applicable to Flight III ships. This shipset was ahead of need in FY16 as all 3 FY16 ships are Flight IIA ships. This shipset will be installed on one of the FY 18 ships.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: VLS MK 41	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	68.626	3	104.865	3	107.010
Ancillary Equipment		3.191		4.883		4.976
Technical Data and Documentation		0.564		0.863		0.879
System Engineering		14.174		21.686		22.101
Technical Engineering Services		13.070		19.997		20.381
Other Costs		7.123		10.896		11.107
Total	**2**	**106.748**	**3**	**163.190**	**3**	**166.454**

Description:

The VLS is a Missile Launching System which provides Surface Combatants with a launcher to carry, prepare for launch and fire, Anti-Air Warfare, Strike/Surface Warfare, and Anti-Submarine Warfare weapons. The MK-41 VLS Launchers consist of twelve modules comprised of eight cells each.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	COMPETITIVE	C/FFP	Jun 2019	New	2	34.313
FY 2019	DDG 130	COMPETITIVE	C/FFP	Jun 2019	New	3	34.955
FY 2020	DDG 133	COMPETITIVE	C/FFP	Jun 2019	New	3	35.670

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	19	24	Mar 2021
FY 2019	DDG 130	Jul 2025	19	24	Dec 2021
FY 2020	DDG 133	Nov 2026	19	24	Apr 2023

Competition/Second Source Initiatives:

Competitive

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: MK 45 Light Weight Gun (LWG)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	39.148	3	59.897	3	61.095
Spares		0.334		0.510		0.521
System Engineering		4.731		7.239		7.383
Technical Engineering Services		2.540		3.887		3.965
Other Costs		6.127		9.374		9.562
Total	**2**	**52.880**	**3**	**80.907**	**3**	**82.526**

Description:

The 5" 62 caliber MK 45 Mod 4 Gun is a digitized high energy system with the capability to automatically select, load and fire different types of 5"/62 caliber projectiles.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	BAE AD/MCNALLY	Various	Mar 2019	Option	2	19.574
FY 2019	DDG 130	BAE AD/MCNALLY	Various	Mar 2020	Option	3	19.966
FY 2020	DDG 133	BAE AD/MCNALLY	Various	Mar 2021	Option	3	20.365

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	25	24	Sep 2020
FY 2019	DDG 130	Jul 2025	25	24	Jun 2021
FY 2020	DDG 133	Nov 2026	25	24	Oct 2022

Competition/Second Source Initiatives:

Sole Source

Remarks:

Contract Data notes:
Gun Mount contract: BAE Armament Division - Sole Source
Lower Hoist contract: McNally - Sole Source

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: MK 37 TOMAHAWK	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	8.940	3	13.679	3	13.950
Spares		1.454		2.225		2.270
System Engineering		4.523		6.920		7.059
Technical Engineering Services		4.296		6.573		6.705
Other Costs		6.790		10.388		10.596
Total	**2**	**26.003**	**3**	**39.785**	**3**	**40.580**

Description:

The Tactical Tomahawk Weapon Control System (TTWCS) is an open system architecture of work stations, processors, printers, fiber optic Local Area Network (LAN) and the Navy Standard Mass Measurement storage device which provides target data management, engagement planning, weapon selection and initiation and launch functions for the TOMAHAWK cruise missile.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	NSWC PT HUENEME	WR	Apr 2019	Various	2	4.470
FY 2019	DDG 130	NSWC PT HUENEME	WR	Apr 2020	Various	3	4.560
FY 2020	DDG 133	NSWC PT HUENEME	WR	Apr 2021	Various	3	4.650

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	31	12	Mar 2021
FY 2019	DDG 130	Jul 2025	31	12	Dec 2021
FY 2020	DDG 133	Nov 2026	31	12	Apr 2023

Competition/Second Source Initiatives:

Navy construction

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: PHALANX (CIWS)	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Hardware	2	12.524	3	19.161	3	19.547
System Engineering		0.847		1.296		1.321
Technical Engineering Services		1.516		2.319		2.366
Other Costs		2.014		3.083		3.142
Total	**2**	**16.901**	**3**	**25.859**	**3**	**26.376**

Description:

Phalanx Close-In Weapon System (CIWS) provides fast reaction terminal defense against anti-ship missiles, aircraft, helicopters, low-slow flyers (e.g. unmanned aerial vehicles) and surface threats. The system is an automatic, self-contained unit consisting of search/track radar, threat evaluation and fire control subsystem, and a 20 mm M61A1 Gatling gun subsystem all mounted in a single structure requiring a minimum of integration with other ship systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity *(Each)*	Unit Cost *($ M)*
FY 2018	DDG 128	RAYTHEON	SS/FFP	Sep 2018	Option	2	6.262
FY 2019	DDG 130	RAYTHEON	SS/FFP	Apr 2019	New	3	6.387
FY 2020	DDG 133	RAYTHEON	SS/FFP	Apr 2020	Option	3	6.516

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	21	24	Jan 2021
FY 2019	DDG 130	Jul 2025	21	24	Oct 2021
FY 2020	DDG 133	Nov 2026	21	24	Feb 2023

Competition/Second Source Initiatives:

Sole Source

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51
Equipment Item: SPQ-9B Radar	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	2	16.162	3	24.728	3	25.223
Spares		0.212		0.324		0.332
System Engineering		0.843		1.290		1.315
Technical Engineering Services		0.896		1.371		1.398
Other Costs		0.992		1.518		1.548
Total	**2**	**19.105**	**3**	**29.231**	**3**	**29.816**

Description:

The AN/SPQ-9B Radar detects and tracks low flying Anti-Ship Missile targets in heavy clutter. The mission of the AN/SPQ-9B includes the capability to detect and classify periscopes with the completion and incorporation of a Periscope Detection and Discrimination (PDD) capability designed to operate concurrently with the AN/SPY-6 capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	DDG 128	DRS	C/FFP	Jul 2018	New	2	8.081
FY 2019	DDG 130	DRS	C/FFP	Mar 2019	Option	3	8.243
FY 2020	DDG 133	DRS	C/FFP	Mar 2020	Option	3	8.408

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	DDG 128	Oct 2024	26	30	Feb 2020
FY 2019	DDG 130	Jul 2025	26	30	Nov 2020
FY 2020	DDG 133	Nov 2026	26	30	Mar 2022

Competition/Second Source Initiatives:

Competitive

Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

First System (2020) Award Date:	First System (2020) Completion Date:	Interval Between Systems:
January 2018	July 2024	12 Months

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
SHIP CONSTRUCTION EOQ									
SHIP Construction EOQ FY19 Ships	Various	Various	12.501	-	0.000	-	-	-	-
SHIP Construction EOQ FY20 Ships	Various	Various	12.500	324.157	0.000	-	-	-	-
SHIP Construction EOQ FY21 Ships	Various	Various	12.517	111.492	112.014	-	-	-	-
SHIP Construction EOQ FY22 Ships	Various	Various	12.517	111.492	112.014	-	-	-	-
SHIP Construction EOQ FY23 Ships	-	-	-	-	0.000	-	-	-	-
SHIP Construction EOQ FY24 Ships	Various	Various	-	-	0.000	-	-	140.500	-
SHIP Construction EOQ FY25 Ships	Various	Various	-	-	0.000	-	-	102.700	70.000
SHIP Construction EOQ FY26 Ships	Various	Various	-	-	0.000	-	-	64.600	70.000
SHIP Construction EOQ FY27 Ships	Various	Various	-	-	0.000	-	-	64.600	70.000
Total: SHIP CONSTRUCTION EOQ			*50.035*	*547.141*	*224.028*	-	-	*372.400*	*210.000*
VLS Advanced Procurement									
VLS EOQ FY19 Ships	-	-	26.861	-	0.000	-	-	-	-
VLS EOQ FY20 Ships	-	-	13.440	13.563	0.000	-	-	-	-
VLS EOQ FY21 Ships	-	-	-	40.612	0.000	-	-	-	-
VLS EOQ FY22 Ships	-	-	-	40.612	0.000	-	-	-	-
VLS EOQ FY23 Ships	-	-	-	-	0.000	-	-	-	-
VLS EOQ FY24 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY25 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY26 Ships	-	-	-	-	0.000	-	-	28.000	-
VLS EOQ FY27 Ships	-	-	-	-	0.000	-	-	28.000	-
Total: VLS Advanced Procurement			*40.301*	*94.787*	-	-	-	*112.000*	-
Total Advance Procurement/Obligation Authority			**90.336**	**641.928**	**224.028**	**-**	**-**	**484.400**	**210.000**

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2122 / DDG-51

Cost Elements	FY 2020 Production Leadtime (Months)	When Required* (Months)	Unit Cost ($ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request ($ M)
SHIP CONSTRUCTION EOQ							
SHIP Construction EOQ FY19 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY20 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY21 Ships	Various	Various	-	Mar 2020	-	2021	112.014
SHIP Construction EOQ FY22 Ships	Various	Various	-	Mar 2020	-	2022	112.014
SHIP Construction EOQ FY23 Ships	-	-	-		-		0.000
SHIP Construction EOQ FY24 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY25 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY26 Ships	Various	Various	-		-		0.000
SHIP Construction EOQ FY27 Ships	Various	Various	-		-		0.000
Total: SHIP CONSTRUCTION EOQ							*224.028*
VLS Advanced Procurement							
VLS EOQ FY19 Ships	-	-	-		-		0.000
VLS EOQ FY20 Ships	-	-	-		-		0.000
VLS EOQ FY21 Ships	-	-	-		-		0.000
VLS EOQ FY22 Ships	-	-	-		-		0.000
VLS EOQ FY23 Ships	-	-	-		-		0.000
VLS EOQ FY24 Ships	-	-	-		-		0.000
VLS EOQ FY25 Ships	-	-	-		-		0.000
VLS EOQ FY26 Ships	-	-	-		-		0.000
VLS EOQ FY27 Ships	-	-	-		-		0.000
Total: VLS Advanced Procurement							-
Total Advance Procurement/Obligation Authority							**224.028**

Description:
AP is required for shipbuilder Economic Order Quantity procurements for material items to achieve savings under the FY18-22 MYP and FY23-27 planned/projected MYP contracts and for VLS procurements. Reflects FY19 Congressional Addition of $250.0 million for FY20 third ship.

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	27	3	3	-	-	-	-	-	-	-	-	33
Gross/Weapon System Cost *($ in Millions)*	13,661.184	1,566.971	1,571.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	16,799.399
Less PY Advance Procurement *($ in Millions)*	158.900	-	-	-	-	-	-	-	-	-	-	158.900
Less Cost To Complete *($ in Millions)*	456.146	-	-	-	-	-	-	-	-	-	-	456.146
Net Procurement (P-1) *($ in Millions)*	13,046.138	1,566.971	1,571.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	16,184.353
Full Funding TOA *($ in Millions)*	13,046.138	1,566.971	1,571.244	-	-	-	-	-	-	-	-	16,184.353
Plus CY Advance Procurement *($ in Millions)*	158.900	-	-	-	-	-	-	-	-	-	-	158.900
Plus Cost To Complete *($ in Millions)*	245.719	26.853	103.184	14.000	-	14.000	24.860	-	41.530	-	-	456.146
Total Obligation Authority *($ in Millions)*	**13,450.757**	**1,593.824**	**1,674.428**	**14.000**	**0.000**	**14.000**	**24.860**	**0.000**	**41.530**	**0.000**	**-**	**16,799.399**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	603.853	137.040	154.539	159.247	-	159.247	130.345	134.359	134.057	136.738	22.922	1,613.100
Total *($ in Millions)*	**14,054.610**	**1,730.864**	**1,828.967**	**173.247**	**-**	**173.247**	**155.205**	**134.359**	**175.587**	**136.738**	**22.922**	**18,412.499**
Gross/Weapon System Unit Cost *($ in Millions)*	505.970	522.324	523.748	-	-	-	-	-	-	-	-	509.073

Description:

Provides for the design, construction, integration, and testing of the Littoral Combat Ship (LCS) including ordnance, government furnished equipment (GFE), plans and change order costs.

LCS: Operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including anti-submarine warfare (ASW), surface warfare (SUW), and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of the mission package installed, including intelligence, surveillance, and reconnaissance (ISR), anti-terrorism/force protection (AT/FP), air warfare self-defense, joint littoral mobility, and logistic support for movement of personnel and supplies. LCS SUW ships will also include maritime interdiction/interception operations (MIO). This relatively small, shallow-draft, high-speed surface combatant complements the U.S. Navy's Surface Fleet by operating in environments where it is impossible or undesirable to employ larger deeper-draft, multi-mission ships. LCS can deploy independently to overseas littoral regions or remain on station for extended periods of time either with a battle group or through a forward-basing arrangement. LCS will operate with Carrier Strike Groups, Surface Action Groups, or independently as dictated by the mission and environment. Additionally, LCS can operate cooperatively with the U.S. Coast Guard and Allies.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Characteristics:	LM	AUSTAL
Length Overall	115.3m	127.6m
Beam	17.5m	31.6m
Displacement	3089 mt	2842 mt
Draft	4.3m	4.4m

Systems:

Electronics
-NAVY MULTIBAND TERMINAL (NMT)

Ordnance
-SEARAM

Production Status:	LCS 17	LCS 20	LCS 19	LCS 22	LCS 21	LCS 24	LCS 23
Contract Award Date	Mar 2014	Mar 2014	Mar 2014	Mar 2015	Mar 2015	Mar 2015	Nov 2015
Months to Completion							
a) Award to Delivery	64 months	64 months	71 months	53 months	67 months	61 months	67 months
b) Construction Start to Delivery	47 months	41 months	42 months	32 months	44 months	33 months	45 months
Delivery Date	Jul 2019	Jul 2019	Feb 2020	Aug 2019	Oct 2020	Apr 2020	Jun 2021
Completion Of Fitting Out	Apr 2020	Feb 2020	Oct 2020	Jun 2020	Aug 2021	Jan 2021	Feb 2022
Obligation Work Limit Date	Mar 2021	Nov 2020	Sep 2021	May 2021	Jul 2022	Dec 2021	Jan 2023

Production Status:	LCS 26	LCS 25	LCS 28	LCS 27	LCS 30	LCS 32	LCS 29
Contract Award Date	Mar 2016	Mar 2016	Jun 2017	Oct 2017	Oct 2017	Sep 2018	Sep 2018
Months to Completion							
a) Award to Delivery	56 months	71 months	55 months	60 months	60 months	60 months	60 months
b) Construction Start to Delivery	34 months	48 months	39 months	47 months	41 months	46 months	45 months
Delivery Date	Nov 2020	Feb 2022	Jan 2022	Oct 2022	Oct 2022	Sep 2023	Sep 2023
Completion Of Fitting Out	Aug 2021	Oct 2022	Oct 2022	Jun 2023	Jul 2023	Jun 2024	Jun 2024
Obligation Work Limit Date	Jul 2022	Sep 2023	Sep 2023	May 2024	Jun 2024	May 2025	May 2025

Production Status:	LCS 34	LCS 36	LCS 38	LCS 31
Contract Award Date	Sep 2018	Dec 2018	Dec 2018	Jan 2019
Months to Completion				
a) Award to Delivery	60 months	60 months	66 months	60 months
b) Construction Start to Delivery	43 months	43 months	43 months	43 months
Delivery Date	Sep 2023	Dec 2023	Jun 2024	Jan 2024
Completion Of Fitting Out	Jun 2024	Sep 2024	Mar 2025	Oct 2024
Obligation Work Limit Date	May 2025	Aug 2025	Feb 2026	Sep 2025

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Jul 2003	Dec 2003		
Contract Design	May 2004	Dec 2004		
Detail Design	Dec 2004	Jun 2007		
Request for Proposals	N/A	Jan 2010		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2127 / Littoral Combat Ship (LCS)	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Design Agent	LOCKHEED MARTIN - AUSTAL			

Classification of Cost Estimate: CLASS C

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)

Cost Categories (†) indicates the presence of a P-8a	**FY 2013**		**FY 2014**		**FY 2015**		**FY 2016**		**FY 2017**		**FY 2018**		**FY 2019**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	4	81.025	4	84.706	3	121.263	3	87.490	3	86.300	3	33.486	3	51.801
Basic Construction/Conversion		1,516.349		1,508.307		1,189.579		1,171.567		1,333.684		1,343.222		1,325.938
Change Orders		64.438		72.896		47.383		33.998		24.000		26.196		26.157
Electronics (†)		44.513		45.962		40.831		43.819		46.183		47.014		47.954
Hull, Mechanical, and Electrical (HM&E) (†)		14.078		14.318		11.041		11.228		11.419		11.625		11.858
Ordnance (†)		33.996		37.759		29.169		29.665		30.169		30.712		31.326
Other Cost		67.038		69.035		71.469		72.684		73.467		74.716		76.210
Total Ship Estimate		**1,821.437**		**1,832.983**		**1,510.735**		**1,450.451**		**1,605.222**		**1,566.971**		**1,571.244**
Less Advance Procurement FY 2015		-		-		-		80.000		-		-		-
Less Cost to Complete FY 2017		82.400		-		-		-		-		-		-
Less Cost to Complete FY 2018		-		20.471		-		-		-		-		-
Less Cost to Complete FY 2019		-		19.498		83.686		-		-		-		-
Less Cost to Complete FY 2020		-		-		-		14.000		-		-		-
Less Cost to Complete FY 2021		-		-		-		24.860		-		-		-
Less Cost to Complete FY 2023		-		-		-		-		41.530		-		-
Net P-1 Funding		**1,739.037**		**1,793.014**		**1,427.049**		**1,331.591**		**1,563.692**		**1,566.971**		**1,571.244**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)

Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
LCS 17	LOCKHEED MARTIN	2014	Mar 2014	Aug 2015	Jul 2019
LCS 20	AUSTAL	2014	Mar 2014	Feb 2016	Jul 2019
LCS 19	LOCKHEED MARTIN	2014	Mar 2014	Aug 2016	Feb 2020
LCS 22	AUSTAL	2015	Mar 2015	Dec 2016	Aug 2019
LCS 21	LOCKHEED MARTIN	2015	Mar 2015	Feb 2017	Oct 2020
LCS 24	AUSTAL	2015	Mar 2015	Jul 2017	Apr 2020
LCS 23	LOCKHEED MARTIN	2016	Nov 2015	Sep 2017	Jun 2021
LCS 26	AUSTAL	2016	Mar 2016	Jan 2018	Nov 2020
LCS 25	LOCKHEED MARTIN	2016	Mar 2016	Feb 2018	Feb 2022
LCS 28	AUSTAL	2017	Jun 2017	Oct 2018	Jan 2022
LCS 27	LOCKHEED MARTIN	2017	Oct 2017	Nov 2018	Oct 2022
LCS 30	AUSTAL	2017	Oct 2017	May 2019	Oct 2022
LCS 32	AUSTAL	2018	Sep 2018	Nov 2019	Sep 2023
LCS 29	LOCKHEED MARTIN	2018	Sep 2018	Dec 2019	Sep 2023
LCS 34	AUSTAL	2018	Sep 2018	Feb 2020	Sep 2023
LCS 36	AUSTAL	2019	Dec 2018	May 2020	Dec 2023
LCS 38	AUSTAL	2019	Dec 2018	Nov 2020	Jun 2024
LCS 31	LOCKHEED MARTIN	2019	Jan 2019	Jun 2020	Jan 2024

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)

Electronics	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
P-35 Items				
NAVY MULTIBAND TERMINAL (NMT)	3	12.425	3	12.636
P-35 Items Subtotal		**12.425**		**12.636**
Major Items				
AN/URC-141 (C) MIDS ON SHIP (MOS)	3	8.406	3	8.549
MULTI-VEHICLE COMMUNICATION SYSTEM (MVCS)	3	5.595	3	5.690
AN/USQ-172(V)5 GLOBAL COMMAND AND CONTROL SYSTEM - MARITIME (GCCS-M)	3	2.302	3	2.341
COMMON DATA LINK MANAGEMENT SYSTEM (CDLMS) Link-11 (C2P)	1	1.241	1	1.266
AN/USQ-144J(V)2 AUTOMATED DIGITAL NETWORK SYSTEM (ADNS)	3	1.974	3	2.008
ELECTRONIC KEY MANAGEMENT SYSTEM (EKMS)/CRYPTO SYSTEM	3	1.842	3	1.873
DS- LOGISTICS MAINTENANCE AUTOMATED INFO SYSTEM - BAR CODE SUPPLY (BCS) NAVY TACTICAL COMMAND SPT SY	3	1.285	3	1.307
Major Items Subtotal		**22.645**		**23.034**
Other Cost Elements				
OTHER ELECTRONICS	0	11.944	0	12.284
Other Cost Elements Subtotal		**11.944**		**12.284**
Total Electronics		**47.014**		**47.954**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Items				
VISUAL LANDING AIDS (VLA)	3	7.059	3	7.179
AN/SRC-59 SHIPWIDE INTERIOR WIRELESS COMMUNICATION SYSTEM (SIWCS)	3	1.855	3	1.887
TRASH DISPOSAL - SMALL PULPER	3	0.535	3	0.544
JOINT BIOLOGICAL POINT DETECTION SYSTEM (JBPDS)	3	0.480	3	0.488
Major Items Subtotal		**9.929**		**10.098**
Other Cost Elements				
OTHER HM&E	0	1.696	0	1.760
Other Cost Elements Subtotal		**1.696**		**1.760**
Total Hull, Mechanical, and Electrical (HM&E)		**11.625**		**11.858**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)

Ordnance	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
P-35 Items				
SEARAM	3	28.511	3	28.996
P-35 Items Subtotal		**28.511**		**28.996**
Major Items				
ORDNANCE HANDLING EQUIPMENT	2	1.390	2	1.413
SMALL ARMS, MACHINE GUNS	3	0.811	3	0.917
Major Items Subtotal		**2.201**		**2.330**
Total Ordnance		**30.712**		**31.326**

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)
Equipment Item: NAVY MULTIBAND TERMINAL (NMT)	**PARM Code:** PMW170

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
Major Hardware	3	10.945	3	11.131
System Engineering		0.197		0.200
Engr/ILS/Mgmt Spt		0.246		0.250
Technical Support Services		0.854		0.869
Program Management		0.183		0.186
Total	**3**	**12.425**	**3**	**12.636**

Description:

Navy Multiband Terminal (NMT) radio provides joint interoperable high capability voice, data, and video communications for combatants and Flag-capable ships. It provides the required global connectivity among Fleet units, joint forces, allied and NATO forces, and Naval C4I commands.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LCS 29	RAYTHEON	SS/FFP	Dec 2017	Option	3	3.648
FY 2019	LCS 36	RAYTHEON	SS/FFP	TBD	Option	3	3.710

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LCS 29	Sep 2023	21	14	Oct 2020
FY 2019	LCS 36	Dec 2023	21	14	Jan 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2127 / Littoral Combat Ship (LCS)
Equipment Item: SEARAM	**PARM Code:** IWS11

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
Major Hardware	3	24.173	3	24.584
Technical Data and Documentation		0.151		0.154
System Engineering		1.063		1.081
Technical Engineering Services		1.512		1.538
Software		0.150		0.153
Test & Evaluation		0.910		0.925
Program Management		0.552		0.561
Total	**3**	**28.511**	**3**	**28.996**

Description:

SeaRAM is an Anti-Ship Missile Defense System and is an evolved Close-In Weapon System (CIWS) composed of key attributes of both the existing Phalanx CIWS and the RAM . SeaRAM is designed to extend the battle space of the CIWS and enable the ship to effectively engage multiple targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LCS 29	RAYTHEON	SS/FFP	Sep 2018	New	3	8.058
FY 2019	LCS 36	RAYTHEON	SS/FFP	TBD	Option	3	8.195

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LCS 29	Sep 2023	13	22	Oct 2020
FY 2019	LCS 36	Dec 2023	13	22	Jan 2021

Competition/Second Source Initiatives:

N/A

Remarks:

N/A

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A
Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	1	-	1	2	2	2	2	11	20
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	1,281.177	0.000	1,281.177	2,057.027	1,750.434	1,792.095	1,827.937	11,761.465	20,470.135
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**1,281.177**	**0.000**	**1,281.177**	**2,057.027**	**1,750.434**	**1,792.095**	**1,827.937**	**11,761.465**	**20,470.135**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	0.000
Total *($ in Millions)*	**-**	**-**	**-**	**1,281.177**	**-**	**1,281.177**	**2,057.027**	**1,750.434**	**1,792.095**	**1,827.937**	**11,761.465**	**20,470.135**
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	1,281.177	-	1,281.177	1,028.514	875.217	896.048	913.969	1,069.224	1,023.507

Description:

The Guided Missile Frigate (FFG(X)) is a more lethal and survivable multi-mission small surface combatant. In FY14, the Navy established the requirements for a lethal and survivable small surface combatant ship (designated as Frigate (FF)), above that of Littoral Combat Ship (LCS), to meet future missions. Based upon the Navy's 2016 Force Structure Assessment resulting in validation of the need for 52 small surface combatants and the need to address increasingly complex threats in the global maritime environment, the Navy reassessed the capabilities required to ensure the Frigate paces future threats. The updated assessment was completed to support establishment of top-level FFG(X) requirements in Summer 2017 and resulted in a Navy approved Capability Development Document (CDD). The CDD is scheduled for JROC-Validation in 2nd Qtr 2019. With FFG(X), the Navy desires to maximize the small surface combatant capabilities in the anti-surface warfare (SUW), anti-submarine warfare (ASW), electromagnetic maneuver warfare (EMW), air warfare (AW) mission areas, and survivability while keeping the ship affordable and as a part of a "high-low" mix of surface ships. The FFG(X) program will continue to refine the cost estimates to support a FY 2020 Detail Design and Construction (DD&C) contract award.

Funds were realigned from Littoral Combat Ship (SCN Line Item 2127) to Frigate (SCN Line Item 2128) beginning in FY 2020.

Characteristics:

	TBD
Length Overall	-
Beam	-
Displacement	-
Draft	-

Production Status:	FFG 1
Contract Award Date	Jul 2020
Months to Completion	
a) Award to Delivery	72 months
b) Construction Start to Delivery	48 months
Delivery Date	Jul 2026
Completion Of Fitting Out	Oct 2026
Obligation Work Limit Date	Sep 2027

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 02: Other Warships / BSA 1: Other Warships		P-1 Line Item Number / Title: 2128 / FFG-Frigate	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A	
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Feb 2017	Oct 2017		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	Feb 2018	May 2019		
Detail Design	Jul 2020	N/A		
Request for Proposals	Jul 2019	N/A		
Design Agent				

Classification of Cost Estimate:

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate	

Cost Categories (†) indicates the presence of a P-8a	**FY 2020**	
	Qty *(Each)*	**Total Cost** *($ M)*
Plan Costs	1	143.476
Basic Construction/Conversion		714.705
Change Orders		30.465
Electronics (†)		279.725
Hull, Mechanical, and Electrical (HM&E) (†)		20.965
Ordnance (†)		43.384
Other Cost		48.457
Total Ship Estimate		**1,281.177**
Net P-1 Funding		**1,281.177**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1			P-1 Line Item Number / Title: 2128 / FFG-Frigate		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
FFG 1	TBD	2020	Jul 2020	Jul 2022	Jul 2026
FFG 2	TBD	2021	Apr 2021	Jan 2023	Jan 2027
FFG 3	TBD	2021	Apr 2021	Jun 2023	Jun 2027
FFG 4	TBD	2022	Apr 2022	Nov 2023	Oct 2027
FFG 5	TBD	2022	Apr 2022	Apr 2024	Mar 2028
FFG 6	TBD	2023	Apr 2023	Oct 2024	Aug 2028
FFG 7	TBD	2023	Apr 2023	Apr 2025	Feb 2029
FFG 8	TBD	2024	Apr 2024	Oct 2025	Jul 2029
FFG 9	TBD	2024	Apr 2024	Apr 2026	Jan 2030

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Electronics	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
P-35 Items		
Enterprise Air Surveillance Radar (EASR)	1	60.876
Frigate Weapon System (FWS)	1	51.530
Anti-Submarine Warfare (ASW) Combat Suite	1	48.834
Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6)	1	13.589
Tactical COMINT System- Spectral	1	11.872
Cooperative Engagement Capability (CEC)	1	11.095
External Communication Suite	1	7.396
Identfication Friend or Foe (IFF) UPX-29	1	6.499
Network Tactical Common Data Link (NTCDL) Variant B	1	5.770
Consolidated Afloat Network Enterprise System (CANES)	1	5.282
NIXIE AN/SLQ-25E	1	4.523
Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1))	1	4.522
Situation Awareness EO/IR	1	4.487
Inertial Navigation System (INS) AN/WSN-7(V)1	1	3.841
P-35 Items Subtotal		**240.116**
Major Items		
Next Generation Surface Search Radar (NGSSR)	2	3.134
Commercial Broadband Satellite Program	1	2.112
OA-9277A	1	2.104
Moriah Wind System (MWS) (AN/SMQ-13)	1	1.864
Major Items Subtotal		**9.214**
Other Cost Elements		
Other Electronics	1	30.395
Other Cost Elements Subtotal		**30.395**
Total Electronics		**279.725**

Remarks:
Other Electronics include C4I System Innovation Facility (C-SIF) / Technical Integration Facility (TIF), Advanced Training Domain (ATD), Navy Electronic Chart Display Information System (ECDIS), Tactical Variant Switch (TVS) (AN/USQ-155(V)), Antennas, and various other systems.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Hull, Mechanical, and Electrical (HM&E)	FY 2020	
	Qty *(Each)*	Total Cost *($ M)*
P-35 Items		
Aircraft Ship Integrated Securing and Traversing System (ASIST)	1	8.361
Internal Communication (IC) Voice	1	3.275
P-35 Items Subtotal		**11.636**
Major Items		
Advanced Flight Deck Lighting System (AFDLS)	1	2.301
Shipwide Interior Wireless Communication System (SIWCS)	1	1.881
Unclassified Video System (UVS)	1	1.623
Major Items Subtotal		**5.805**
Other Cost Elements		
Other HM&E	1	3.524
Other Cost Elements Subtotal		**3.524**
Total Hull, Mechanical, and Electrical (HM&E)		**20.965**

Remarks:
Other HM&E includes 7M Rigid Hull Inflatable Boat (RHIB), Horizon Reference Set (HRS), Enhanced Maritime Biological Detection (EMBD), Plastic Shredder, and other systems.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate

Ordnance	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
P-35 Items		
MK 48 Gun Weapon System (GWS)	1	14.838
Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell	1	12.004
MK 41 Vertical Launch System (VLS)- 32 Cell	1	11.519
P-35 Items Subtotal		**38.361**
Major Items		
Over-The-Horizon Missile Launcher (OTH)- 8 Canister	1	2.950
MK 53 Decoy Launching System (DLS) (Nulka)- 4 Launcher	1	1.523
Major Items Subtotal		**4.473**
Other Cost Elements		
Other Ordnance	1	0.550
Other Cost Elements Subtotal		**0.550**
Total Ordnance		**43.384**

Remarks:
Other Ordnance includes Portable Ordnance Handling Equipment (POHE) and Machine Gun Mounts

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate	
Equipment Item: Enterprise Air Surveillance Radar (EASR)		PARM Code: PEO IWS 2A

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	45.786
System Engineering		2.121
Technical Engineering Services		2.180
Other Costs		10.789
Total	**1**	**60.876**

Description:

Enterprise Air Surveillance Radar (EASR) is the next generation S-band air search radar with 3-D search capability supporting Air Warfare (AW) for self- and local area defense; Surface Warfare (SUW) for Fast Attack Craft (FAC), Fast Inshore Attack Craft (FIAC); Asymmetric / Force Protection; Electromagnetic Maneuver Warfare.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Raytheon	C/FPIS	TBD		1	45.786

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	28	Nov 2020

Competition/Second Source Initiatives:

N/A

Remarks:

Both FFG(X) and CVN (starting at CVN 79) will have fixed faced 9-RMA EASRs, however the software integration to the Frigate Weapon System (FWS) will be different.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Frigate Weapon System (FWS)	**PARM Code:** PEO IWS 8.0

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	13.190
System Engineering		2.632
Technical Engineering Services		1.138
Other Costs		34.570
Total	**1**	**51.530**

Description:

The Frigate Weapon System (FWS) is an integrated combat management system that provides doctrine, management, control, and display functionality for FFG(X) Combat System (FCS) missions as well as command and control functionality for the entire combat system. The FWS comprises: Command and Decision (C&D) System, Combat System Computing Infrastructure (CSCI), Shipboard Gridlock System/ Automatic Correlation (SGS/AC), Aegis Display System (ADS), Weapons Control System (WCS), Operational Readiness Training System (ORTS), Mission Planner (MP), Vehicle Control Domain (VCD), and resource management for the Enterprise Air Surveillance Radar.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	C/FFP	TBD		1	13.190

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	29	Oct 2020

Competition/Second Source Initiatives:

FWS will be procured under the competitive combat system contract run by IWS 1.0 with award in FY 2021.

Remarks:

Other costs represent the system integration and test for the entire combat system.

FWS is an AEGIS Common Source Library (CSL) derived command and control system for the Frigate Combat System (FCS). The change to FWS from CMS occurred in unison with the move from FF to FFG.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Anti-Submarine Warfare (ASW) Combat Suite	**PARM Code:** PEO IWS 5.0

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	31.301
System Engineering		7.417
Technical Engineering Services		2.990
Other Costs		7.126
Total	**1**	**48.834**

Description:

The Anti-Submarine Warfare (ASW) Combat Suite provides surface warships with an integrated undersea/anti-submarine warfare detection, localization, classification, and targeting ability. It includes AN/SQQ-89, Undersea Warfare Decision Support System (USW-DSS), Multi Function Towed Array (MFTA), expendable bathythermograph (XBT) launcher LM-48, and the fathometer.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Various	Various	Various		1	31.301

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Remarks:

Variable Depth Sonar (VDS) was moved to CFE equipment & option provided to use low-band hull array. This results in a decrease in the ASW Combat Suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Surface Electronic Warfare Improvement Program (SEWIP) BLK II (SLQ-32(V)6)	**PARM Code:** PEO IWS 2E

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	10.309
System Engineering		0.966
Technical Engineering Services		0.108
Other Costs		2.206
Total	**1**	**13.589**

Description:

The AN/SLQ-32 SEWIP Block II is a scalable Electronic Warfare enterprise suite to provide Electromagnetic Interference (EMI) mitigation and combat system interface capabilities. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Various	Various	Mar 2021	Various	1	10.309

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Tactical COMINT System- Spectral	**PARM Code:** PMW 120

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	9.885
System Engineering		0.477
Technical Engineering Services		0.678
Other Costs		0.832
Total	**1**	**11.872**

Description:

Spectral is the next generation information warfare weapons system, enhancing Ship Signals Exploitation System (SSES) capabilities that detects, classifies, and tracks SOI (Signals of Interest) used in the Tasking, Collection, Processing, Exploitation and Dissemination (TCPED) process. Spectral is scalable, mission configurable, modular, and remotable, rapidly responding to new threats and/or capabilities. A integrated capability enables data sharing with other systems to support electromagnetic maneuver warfare (EMW/Integrated fires (IF)).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	9.885

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Cooperative Engagement Capability (CEC)	**PARM Code:** PEO IWS 6.0

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	8.631
System Engineering		0.640
Technical Engineering Services		0.646
Other Costs		1.178
Total	**1**	**11.095**

Description:

The Cooperative Engagement Capability (CEC) AN/USG-2B system provides real time integration of fire control quality sensor data into a single composite data source, which can be used by multiple CEC ships and airborne units for direct and remote missile engagements. CEC significantly improves battle force Anti-Air Warfare (AAW) capability by coordinating all force AAW sensors into a single real time, fire control quality composite track picture.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	Various	Various		1	8.631

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: External Communication Suite	**PARM Code:** PMW 760

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	6.345
System Engineering		0.178
Technical Engineering Services		0.517
Other Costs		0.356
Total	**1**	**7.396**

Description:

External Communication Suite (EXCOMM) is a software programmable tactical radio (with embedded INFOSEC [Information Security]) that provides interoperable Line of Sight/Beyond Line of Sight (LOS/BLOS) C4I capabilities to the fleet.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Various	C/FFP	TBD		1	6.345

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Identfication Friend or Foe (IFF) UPX-29	**PARM Code:** PMA 213

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	5.221
System Engineering		0.714
Technical Engineering Services		0.207
Other Costs		0.357
Total	**1**	**6.499**

Description:

The AN/UPX-29(V) provides a centralized identification system that operates independently to transmit interrogations, detect transponder replies, and process the resulting information for use by a ship's operators and combat weapons system computers. The system provides Modes 1, 2, 3A, C and provides secure, positive ID of Mode 4, Mode S and Mode 5 targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	Various	Various		1	5.221

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Network Tactical Common Data Link (NTCDL) Variant B	**PARM Code:** PMW 170

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	4.281
System Engineering		0.577
Technical Engineering Services		0.255
Other Costs		0.657
Total	**1**	**5.770**

Description:

NTCDL provides the ability to transmit/receive real-time ISR data simultaneously from multiple sources (air, surface, subsurface, and man-portable) and exchange command and control information (voice, data, imagery, and full-motion video) across dissimilar joint, service, coalition, and civil networks. NTCDL provides warfighters the capability to support multiple, simultaneous, networked operations with in-service CDL equipped aircraft (e.g., F/A-18, P-3, and MH-60R) in addition to next-generation manned and unmanned platforms (e.g., Fire Scout).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	BAE Systems Inc.	TBD	TBD		1	4.281

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	P-1 Line Item Number / Title: 2128 / FFG-Frigate	
Equipment Item: Consolidated Afloat Network Enterprise System (CANES)		PARM Code: PMW 160

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	2.645
System Engineering		1.985
Technical Engineering Services		0.513
Other Costs		0.139
Total	**1**	**5.282**

Description:

CANES is a single, highly scalable network, computing, and services infrastructure supporting mission area application hosting and service delivery across a diverse set of Communities of Interest (COIs). It provides Navy tactical/nontactical information environment and infrastructure necessary to enable hosting, extended services reach back & reach forward and relay functions.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	2.645

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: NIXIE AN/SLQ-25E	**PARM Code:** PMS 415

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	2.010
System Engineering		0.291
Technical Engineering Services		0.442
Other Costs		1.780
Total	**1**	**4.523**

Description:

The Torpedo Countermeasures Transmitting Set AN/SLQ-25E (NIXIE) is a passive, electro-acoustic decoy system used to provide deceptive countermeasures against acoustic homing torpedoes.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	2.010

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Navy Advanced Extremely High Frequency (AEHF) Multiband Terminal (NMT)(AN/WSC-9(V)1))	**PARM Code:** PMW 170

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	3.952
System Engineering		0.041
Technical Engineering Services		0.190
Other Costs		0.339
Total	**1**	**4.522**

Description:

The Navy Multiband Terminal (NMT) is the Navy's next generation ground terminal for military protected and wideband satellite communications, providing voice, video and data communications. NMT supports protected strategic/tactical warfare communications down to housekeeping and humanitarian (quality of life) communications for the Sailor and maintains backwards compatibility with legacy waveforms and systems while ensuring access to new and future MILSATCOM capabilities (AEHF, WGS, EPS).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Various	Various	Dec 2020	Option	1	3.952

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Situation Awareness EO/IR	**PARM Code:** PEO IWS 2E

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	2.905
System Engineering		0.554
Technical Engineering Services		0.090
Other Costs		0.938
Total	**1**	**4.487**

Description:

Situation Awareness Electro-Optical/Infrared (EO/IR) system provides the capability to classify, identify and assist in determining intent of conventional, asymmetrical and advanced contacts/threats. EO/IR improves Situational Awareness (SA) and supports AT/FP, ISR, NAV, INTEL, SUW, AAW and ASMD missions while providing Long Range HD Visible/Infra-Red and Laser Range Finding sensors and capability for controlling, displaying and recording sensor imagery

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Ball Aerospace & Technologies	TBD	TBD		1	2.905

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Inertial Navigation System (INS) AN/WSN-7(V)1	**PARM Code:** PEO IWS 6.0

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	2.500
System Engineering		0.180
Technical Engineering Services		0.396
Other Costs		0.765
Total	**1**	**3.841**

Description:

The AN/WSN-7 Ring Laser Gyro Navigation (RLGN) System calculates and disseminates own ship's position, velocity and attitude (heading, roll and pitch) data outputs. The AN/WSN-7 RLGN System provides real time navigation data to use by Navigation & combat systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Sperry Marine	TBD	Sep 2020		1	2.500

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	17	Oct 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Aircraft Ship Integrated Securing and Traversing System (ASIST)	**PARM Code:** PMA 251

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	4.163
System Engineering		0.516
Technical Engineering Services		2.397
Other Costs		1.285
Total	**1**	**8.361**

Description:

Aircraft Ship Integrated Secure and Traverse (ASIST) provides safe recovery, securing, straightening, traversing, stowing, and launching of MH-60R and MQ-8C.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	INDAL	SS/IDIQ	Sep 2021	New	1	4.163

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	21	24	Oct 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Internal Communication (IC) Voice	**PARM Code:** PEO SHIPS

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	1.700
System Engineering		0.185
Technical Engineering Services		0.920
Other Costs		0.470
Total	**1**	**3.275**

Description:

IC Voice provides shipboard internal communication consisting of the announcing system, telephones, and wireless radios.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	TBD	TBD		1	1.700

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	12	Mar 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: MK 48 Gun Weapon System (GWS)	**PARM Code:** PEO IWS 3C

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	11.108
System Engineering		0.951
Technical Engineering Services		0.417
Other Costs		2.362
Total	**1**	**14.838**

Description:

The MK 48 MOD 2 Gun Weapon System is fully integrated with MK 160 MOD 18 Gun Computer System w/ MK 20 MOD 1 Electro Optical Sight System and MK 110 MOD 0 57mm gun. The MK 160 Gun Fire Control System (GFCS) is the standard USN gun fire control system; the MK 20 Electro-Optical Sensor System (EOSS) is the standard gun optical sight used for gun engagements; and the MK 110 is an automated 57mm gun system used for surface and air engagements of hostile targets.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Various	C/FFP	Various	Various	1	11.108

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: Rolling Airframe Missile (RAM) Guided Missile Launching System- 21 Cell	**PARM Code:** PEO IWS 11

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	10.060
System Engineering		0.775
Technical Engineering Services		0.372
Other Costs		0.797
Total	**1**	**12.004**

Description:

The Rolling Airframe Missile (RAM) Guided Missile Weapon System (GMWS) is a lightweight, fast reaction, high-firepower, passive, dual-mode (IR and RF) system. The RAM GMWS is a point defense weapon system, designed to engage and destroy incoming Anti-Ship Cruise Missiles (ASCM), helicopters, and fixed wing aircraft, and to engage and intercept surface craft. This represents the 21-cell variant.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	Raytheon	C/FFP	TBD		1	10.060

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	24	Mar 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 02 / 1	**P-1 Line Item Number / Title:** 2128 / FFG-Frigate
Equipment Item: MK 41 Vertical Launch System (VLS)- 32 Cell	**PARM Code:** PEO IWS 3L

P-35 Category	FY 2020 Qty (Each)	FY 2020 Total Cost ($ M)
Major Hardware	1	11.089
Other Costs		0.430
Total	**1**	**11.519**

Description:

The MK 41 Vertical Launch System (VLS) is a Modular, Below Deck Missile Launcher supporting Multiple Warfighting Mission Areas: AAW/ASW/BMD/Land Attack/Strike. This represents one 32-cell launcher system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2020	FFG 1	TBD	C/FFP	May 2020		1	11.089

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2020	FFG 1	Jul 2026	40	18	Sep 2021

Competition/Second Source Initiatives:

N/A

Remarks:

The MK41 VLS System requirement increased from 16-cell to 32-cell. Testing and Integration costs are captured under the Frigate Weapons System (FWS).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** 0604454N
Line Item MDAP/MAIS Code: 542	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	1	-	-	-	-	1	-	1	-	-	3
Gross/Weapon System Cost *($ in Millions)*	0.000	1,814.000	0.000	0.000	0.000	0.000	1,838.000	0.000	1,738.892	0.000	350.000	5,740.892
Less PY Advance Procurement *($ in Millions)*	-	14.000	-	-	-	-	247.100	-	-	-	350.000	611.100
Net Procurement (P-1) *($ in Millions)*	0.000	1,800.000	0.000	0.000	0.000	0.000	1,590.900	0.000	1,738.892	0.000	-	5,129.792
Plus CY Advance Procurement *($ in Millions)*	14.000	-	350.000	247.100	-	247.100	-	-	-	-	-	611.100
Total Obligation Authority *($ in Millions)*	**14.000**	**1,800.000**	**350.000**	**247.100**	**0.000**	**247.100**	**1,590.900**	**0.000**	**1,738.892**	**0.000**	**-**	**5,740.892**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Total *($ in Millions)*	**14.000**	**1,800.000**	**350.000**	**247.100**	**-**	**247.100**	**1,590.900**	**-**	**1,738.892**	**-**	**-**	**5,740.892**
Gross/Weapon System Unit Cost *($ in Millions)*	-	1,814.000	-	-	-	-	1,838.000	-	1,738.892	-	-	1,913.631

Description:

The FY 2018 Defense Appropriations Act authorized the procurement of LPD 30. Per signed Acquisition Decision Memorandum, LPD 17 Flight II will meet the Capabilities Development Document for LX(R) and shall subsume all previous LX(R) efforts. LPD 30 will be the first ship of LPD 17 Flight II.

The LPD 17 Flight II is expected to functionally replace LSD-41 Class ships and LSD-49 Class ships for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Program is on track to support FY27 retirement of LSDs.

$350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.

Characteristics: -

Length Overall	208.5 m	684 ft
Beam	31.9 m	105 ft
Displacement	25.3 lmt	24.9 klt
Draft	7.0 m	23 ft

Systems:

Electronics

-Mission Systems

Production Status:	LPD 30
Contract Award Date	Mar 2019
Months to Completion	
a) Award to Delivery	71 months
b) Construction Start to Delivery	58 months
Delivery Date	Feb 2025
Completion Of Fitting Out	Sep 2025
Obligation Work Limit Date	Aug 2026

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships		P-1 Line Item Number / Title: 3010 / LPD Flight II	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604454N	
Line Item MDAP/MAIS Code: 542			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Mar 2015	Jun 2016		
Contract Design	Jun 2016	Jun 2017		
Detail Design	Dec 2018	Mar 2020		
Request for Proposals	Jul 2018	Aug 2018		
Design Agent	Huntington Ingalls Industries			

Classification of Cost Estimate: CLASS C

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II

Cost Categories (†) indicates the presence of a P-8a	**FY 2018**	
	Qty *(Each)*	**Total Cost** *($ M)*
Plan Costs	1	
Basic Construction/Conversion		1,459.000
Change Orders		30.000
Electronics (†)		215.724
Hull, Mechanical, and Electrical (HM&E) (†)		16.400
Ordnance (†)		83.876
Other Cost		9.000
Total Ship Estimate		**1,814.000**
Less Advance Procurement FY 2016		14.000
Net P-1 Funding		**1,800.000**

Remarks:
$350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3010 / LPD Flight II		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LPD 30	HUNTINGTON INGALLS INDUSTRIES	2018	Mar 2019	Apr 2020	Feb 2025
LPD 31	TBD	2021	Dec 2020	Jul 2021	May 2026
LPD 32	TBD	2023	Dec 2022	Jul 2023	May 2028

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II

Electronics	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
P-35 Items		
Mission Systems		42.938
C4ISR		78.348
Ship Self Defense System (SSDS)		14.768
Cooperative Engagement Capability (CEC)		10.852
Interrogator System (IFF)		5.915
AN/SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP)		12.771
P-35 Items Subtotal		**165.592**
Major Items		
Advanced Training Domain (ATD)		1.251
AN/WSN-7(RLGN)		3.882
Nulka Decoy Launching System (DLS)		1.419
AADS		1.038
Torpedo Countermeasures Transmitting Set (Nixie)		4.336
RADIAC		0.103
AN/UQN-10		0.204
DHYSL		0.373
Major Items Subtotal		**12.606**
Other Cost Elements		
Miscellaneous Electronics		34.267
IWS CSI		3.259
Other Cost Elements Subtotal		**37.526**
Total Electronics		**215.724**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II

Hull, Mechanical, and Electrical (HM&E)	FY 2018	
	Qty *(Each)*	Total Cost *($ M)*
Major Items		
Boats		0.616
Truck, Forklift		2.070
Chemical Warfare Detector		0.246
Military Payroll System		0.586
Integrated Condition Assessment System (ICAS)		0.216
Oily Water Separator		0.294
Plastic Waste Processing EQP		0.714
Major Items Subtotal		**4.742**
Other Cost Elements		
Miscellaneous HM&E		11.658
Other Cost Elements Subtotal		**11.658**
Total Hull, Mechanical, and Electrical (HM&E)		**16.400**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II

Ordnance	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
P-35 Items		
RAM BLOCK II		20.511
MK 46 GUN		8.350
AN/SPQ-9B Radar Set		6.571
EASR		32.976
P-35 Items Subtotal		**68.408**
Major Items		
50 CAL MACHINE GUN		0.183
ASGSI/HOSS/MWS Fit Control & Inst Land Sys		3.252
ORDNANCE HANDLING EQUIPMENT		0.423
Major Items Subtotal		**3.858**
Other Cost Elements		
MISCELLANEOUS ORDNANCE		11.610
Other Cost Elements Subtotal		**11.610**
Total Ordnance		**83.876**

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: Mission Systems	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		40.902
Other Costs		2.036
Total		**42.938**

Description:

Mission Systems is a microcomputer-based integration of shipboard control electronics; Engineering Control System (ECS), Ship Control System (SCS), HM&E Network, Navigation Data Distribution System (NDDS), Interior Voice Network (IVN), and various distributed Sensors. Mission systems and associated integration will be provided by a combination of CFE and Government supplied material and services.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	Various	SS/FFP	TBD	Various	1	40.902

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	37	24	Oct 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: C4ISR	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		41.102
Spares		0.941
Technical Engineering Services		6.510
Ancillary Equipment		0.246
Documentation and Systems Engineering		5.024
Other Appropriate Costs		9.523
Turnkey		15.002
Total		**78.348**

Description:
To provide the link between the ship, the command hierarchy, and other units of the operating forces.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	Various	Various	TBD	Various	1	41.102

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	16	16	Mar 2022

Competition/Second Source Initiatives:
N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: Ship Self Defense System (SSDS)	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		9.717
Spares		0.613
Technical Engineering Services		0.248
Other Costs		2.122
Documentation and Systems Engineering		2.068
Total		**14.768**

Description:

Ship Self Defense System Mark 2 is microcomputer-based, self-defense coordination system that integrates and automates multiple sensors, self defense weapons, and softkill systems to provide quick reaction combat capability against anti-ship cruise missile threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	TBD	TBD	TBD	New	1	9.717

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	17	13	May 2022

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: Cooperative Engagement Capability (CEC)	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		8.177
Technical Engineering Services		0.435
Documentation and Systems Engineering		0.498
Other Costs		1.742
Total		**10.852**

Description:

Cooperative Engagement Capability (CEC) coordinates all anti-warfare sensors into single, real time, fire control quality composite track which improves battle force air defense.
Production of Planar Array Antenna Assembly (PAAA) production has ended. LPD 30 amounts reflect the Common Array Block (CAB) Family of Antenna (FoA) in place of PAAA.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	Raytheon	C/FFP	Various	Various	1	8.177

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	24	18	May 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: Interrogator System (IFF)	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		5.232
Spares		0.146
Technical Engineering Services		0.117
Other Costs		0.271
Documentation and Systems Engineering		0.149
Total		**5.915**

Description:

The Transponder Set is an Automatic Identification and Monitoring System (AIMS) Identification Friend or Foe (IFF) system that receives interrogation signals from air, surface, and land IFF - equipped units and automatically replies with a coded response signal that provides ownship position and identification.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	TBD	TBD	Various	New	1	5.232

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	6	30	Nov 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: AN/SLQ-32(V)6 Surface Electronic Warfare Improvement Program (SEWIP)	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		10.767
Spares		0.382
Technical Engineering Services		0.142
Other Costs		0.641
Documentation and Systems Engineering		0.839
Total		**12.771**

Description:

The AN/SLQ-32(V)6 (SEWIP) is a shipboard system that provides a full suite of Electronic Warfare capabilities designed to protect against anti-cruise ship missile threats.
The SLQ-32 system is obsolete and NO LONGER AVAILABLE for refurbishment. LPD 30 will be built with the SEWIP (Block 2) system.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	TBD	TBD	TBD		1	10.767

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	24	24	Nov 2020

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: RAM BLOCK II	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		17.935
Spares		0.129
Technical Engineering Services		0.302
Other Costs		1.020
Documentation and Systems Engineering		1.125
Total		**20.511**

Description:

The Rolling Airframe Missile (RAM) Block 2 system is a short-range, fast-reaction, high-firepower, lightweight weapon designed to destroy incoming anti-ship cruise missiles. LLTM was procured with FY16 Advance Procurement.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	Raytheon	C/FFP	Oct 2016	Option	2	8.968

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	22	24	Jan 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: MK 46 GUN	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		8.130
Technical Engineering Services		0.220
Total		**8.350**

Description:

The MK 46 Gun is a remotely operated naval gun system using a high velocity cannon and second-generation thermal day-night sight for close-in ship's protection.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	General Dynamics	C/FFP	TBD	New	2	4.065

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	24	18	May 2021

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: AN/SPQ-9B Radar Set	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		4.200
Spares		0.388
Technical Engineering Services		0.707
Other Costs		0.776
Documentation and Systems Engineering		0.500
Total		**6.571**

Description:

The AN/SPQ-9B is a high resolution, X-band, narrow beam radar that provides both air and surface tracking information.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	DRS LAUREL TECHNOLOGIES	C/FFP	Jul 2018	Option	1	4.200

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	24	24	Nov 2020

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II
Equipment Item: EASR	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)
Major Hardware		20.907
Spares		1.093
Technical Engineering Services		3.259
Other Costs		6.437
Documentation and Systems Engineering		1.280
Total		**32.976**

Description:

Enterprise Air Surveillance Radar (EASR) is the replacement Air Search Radar and the costs are under development.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	LPD 30	TBD	TBD	TBD	New	1	20.907

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	LPD 30	Nov 2024	18	27	Feb 2021

Competition/Second Source Initiatives:

N/A

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Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		**P-1 Line Item Number / Title:** 3010 / LPD Flight II	
First System (2020) Award Date:	**First System (2020) Completion Date:**	**Interval Between Systems:** 0 Months	

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
LPD AP									
BASIC [7]	-	-	-	350.000	0.000	-	-	-	-
Total: LPD AP			-	*350.000*	-	-	-	-	-
LPD 31									
BASIC [8]	Various	76	-	-	247.100	-	-	-	-
Total: LPD 31			-	-	*247.100*	-	-	-	-
Total Advance Procurement/Obligation Authority			**-**	**350.000**	**247.100**				

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3010 / LPD Flight II

Cost Elements	FY 2020						
	Production Leadtime *(Months)*	When Required* *(Months)*	Unit Cost *($ M)*	Contract Forecast Date	2020 Qty *(Each)*	For FY	Total Cost Request *($ M)*
LPD AP							
BASIC [7]	-	-	-		-		0.000
Total: LPD AP							-
LPD 31							
BASIC [8]	Various	76	-	Jan 2020	-	2021	247.100
Total: LPD 31							*247.100*
Total Advance Procurement/Obligation Authority							**247.100**

Description:
AP is required for the second ship of the LPD 17 Class Flight II in order to procure Long Lead Time Material and maintain schedule.

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:
[7] $350M Advance Procurement (AP) was appropriated in FY19 based on the PB19 profile which included a ship in FY20. The Department will need a change in law to execute this funding.
[8] Funding for LLTM for the second ship in FY20 will prevent a year long SCN gap in the acquisition profile.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	5	1	1	-	-	-	-	-	1	-	-	8
Gross/Weapon System Cost *($ in Millions)*	2,837.500	635.000	647.000	0.000	0.000	0.000	0.000	0.000	676.260	0.000	-	4,795.760
Less PY Advance Procurement *($ in Millions)*	179.700	-	-	-	-	-	-	-	127.250	-	-	306.950
Less Cost To Complete *($ in Millions)*	38.000	-	-	-	-	-	-	-	-	-	-	38.000
Less Subsequent Year Full Funding *($ in Millions)*	162.900	-	-	-	-	-	-	-	-	-	-	162.900
Net Procurement (P-1) *($ in Millions)*	2,456.900	635.000	647.000	0.000	0.000	0.000	0.000	0.000	549.010	0.000	-	4,287.910
Plus Subsequent Year Full Funding *($ in Millions)*	162.900	-	-	-	-	-	-	-	-	-	-	162.900
Full Funding TOA *($ in Millions)*	2,619.800	635.000	647.000	-	-	-	-	-	549.010	-	-	4,450.810
Plus CY Advance Procurement *($ in Millions)*	179.700	-	-	-	-	-	-	127.250	-	-	-	306.950
Plus Cost To Complete *($ in Millions)*	-	-	-	38.000	-	38.000	-	-	-	-	-	38.000
Total Obligation Authority *($ in Millions)*	**2,799.500**	**635.000**	**647.000**	**38.000**	**0.000**	**38.000**	**0.000**	**127.250**	**549.010**	**0.000**	**-**	**4,795.760**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	92.545	12.275	27.087	16.091	-	16.091	12.000	-	-	-	-	159.998
Total *($ in Millions)*	**2,892.045**	**647.275**	**674.087**	**54.091**	**-**	**54.091**	**12.000**	**127.250**	**549.010**	**-**	**-**	**4,955.758**
Gross/Weapon System Unit Cost *($ in Millions)*	567.500	635.000	647.000	-	-	-	-	-	676.260	-	-	599.470

Description:

The Expeditionary Mobile Base (ESB) (formerly MLP Afloat Forward Staging Base (AFSB)) will serve as a dedicated Naval Afloat Forward Staging Base, optimized to support naval assets in a variety of missions rather than independently modifying ships-of-opportunity as required to meet these roles. The ESB retains sealift capabilities inherent to the Class through cargo transportation and distribution, but provides enhanced aviation, berthing, small boat handling, and command and control capabilities to meet a broader mission set. The ESB provides the Combatant Commanders flexibility to respond to immediate threats and host task organized forces, including Airborne Mine Countermeasures and Special Forces to confront irregular challenges and counter-terrorism. This includes enhanced logistics and UNREP capability (receive only) and C4I capability to support future missions.

Note:
1) The amounts in the Prior Years column includes the NDSF MPF,F MLP BLI 00401 Procurement Costs for Expeditionary Transport Dock (ESD) 1, ESD 2, and ESB 3 as well as SCN BLI 3039 for the ESB 4 and ESB 5.

2) The Outfitting and Post Delivery amounts in the Prior Years column represent NDSF BLI 5000 for ESD 1, ESD 2, and ESB 3 as well as SCN BLI 5110 for the ESB 4.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Characteristics:	**Nominal Requirements**
Length Overall	255M
Beam	50M
Displacement	28879 TONS
Draft	9.1M

Production Status:	**ESB 5**	**ESB 6**	**ESB 7**
Contract Award Date	Dec 2016	Jun 2019	Jun 2019
Months to Completion			
a) Award to Delivery	33 months	32 months	49 months
b) Construction Start to Delivery	32 months	26 months	26 months
Delivery Date	Sep 2019	Feb 2022	Jul 2023
Completion Of Fitting Out	Dec 2019	May 2022	Oct 2023
Obligation Work Limit Date	Nov 2020	Apr 2023	Sep 2024

Design Schedule	**Start / Issue**	**Complete / Response**	**Reissue**	**Reissue Complete / Response**
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Sep 2009	Dec 2009		
Contract Design	Dec 2009	Aug 2010		
Detail Design	Aug 2010	Nov 2011		
Request for Proposals	N/A	N/A		
Design Agent				

Classification of Cost Estimate: Budget Quality Class

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)

Cost Categories (†) indicates the presence of a P-8a	**FY 2016**		**FY 2018**		**FY 2019**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	1		1		1	
Basic Construction/Conversion		585.908		547.908		557.851
Change Orders		5.517		5.517		5.647
Electronics (†)		65.550		65.550		67.098
Hull, Mechanical, and Electrical (HM&E)		12.260		12.260		12.550
Other Cost		3.765		3.765		3.854
Total Ship Estimate		**673.000**		**635.000**		**647.000**
Less Cost to Complete FY 2020		38.000		-		-
Net P-1 Funding		**635.000**		**635.000**		**647.000**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3039 / Expeditionary Sea Base (ESB)		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
ESB 5	NASSCO	2016	Dec 2016	Jan 2017	Sep 2019
ESB 6	NASSCO	2018	Jun 2019	Dec 2019	Feb 2022
ESB 7	NASSCO	2019	Jun 2019	May 2021	Jul 2023
ESB 8	NASSCO	2023	Jun 2023	May 2024	Jul 2026

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)

Electronics	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
P-35 Items				
C4ISR	1	27.000	1	27.638
AVIATION ELECTRONICS	1	38.550	1	39.460
P-35 Items Subtotal		**65.550**		**67.098**
Total Electronics		**65.550**		**67.098**

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)
Equipment Item: C4ISR	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
Major Hardware	1	16.135	1	16.516
Spares		1.855		1.899
System Engineering		5.565		5.696
Technical Engineering Services		1.060		1.085
Other Costs		2.385		2.442
Total	**1**	**27.000**	**1**	**27.638**

Description:

C4ISR items consist of equipment which is in a containerized environment for secure storage and operation of ship's C2 equipment (Next Generation Wideband Communications, SMIS, (classified and unclassified networks).
Additional cryptographic equipment above the equipment provided with SMIS, Military radios to provide VHF, UHF Line of Site, and UHF SATCOM, Commercial Broadband Satellite Program (CBSP) for wideband SATCOM to provide voice and data communications to the shore.
A Navy network consisting of a rack of electronic boxes that will provide NIPRNET, SIPRNET and CENTRIX plus additional hardware and software to support Military Detachment functions, laptops and printers to outfit several added spaces supporting embarked units: briefing room, tactical operations center, planning room, intel room, training center and communication room. The infrastructure to support installation of a HF radio.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	ESB 6	Booz, Allen and Hamilton (BAH)	C/FFP	Mar 2019	Option	1	16.135
FY 2019	ESB 7	Booz, Allen and Hamilton (BAH)	C/FFP	Aug 2020	Option	1	16.516

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	ESB 6	Feb 2022	19	12	Jul 2019
FY 2019	ESB 7	Jul 2023	19	12	Dec 2020

Competition/Second Source Initiatives:

N/A

Remarks:

1) BAH is prime contractor with several other contractors. NSWC Panama City is the coordinating activity for the C4ISR system.
2) C4ISR: Cost for the ESB 5 and follow ships include the procurement, installation and testing of additional radios and antennas, satellite communication terminals, and network capabilities in support of the Special Operations Forces (SOF) capability.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3039 / Expeditionary Sea Base (ESB)
Equipment Item: AVIATION ELECTRONICS	**PARM Code:** N/A

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
Major Hardware	1	30.292	1	31.007
Spares		0.150		0.154
System Engineering		0.454		0.465
Technical Engineering Services		3.587		3.672
Technical Data		0.116		0.119
Other Costs		3.951		4.043
Total	**1**	**38.550**	**1**	**39.460**

Description:

Consists of a Moriah wind measuring system to support helicopter operations, a Tactical Air Navigation System (TACAN) to provide a navigation beacon for aircraft, Advanced Stabilized Glide Slope Indicator (ASGSI) and Visual Landing Aids (VLA).

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	ESB 6	Various	Various	Mar 2019	Option	1	31.007
FY 2019	ESB 7	Various	Various	Aug 2020	Option	1	31.007

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	ESB 6	Feb 2022	17	14	Jul 2019
FY 2019	ESB 7	Jul 2023	17	14	Dec 2020

Competition/Second Source Initiatives:

N/A

Remarks:

1) AVIATION ELECTRONICS: Aviation navigation and landing system electronics.
2) Contract Data and Delivery Date information are estimated and provided based on planned execution.
3) Cost for the ESB 5 and follow ships include the procurement, installation and test infrastructure of antennas and control systems for the Air Search Radar, Small Tactical Unmanned Aerial System (STUAS), MQ-8C Ground Control Station (GCS) and Fire Scout UAV system in support of the Special Operations Forces (SOF) capability.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604567N
Line Item MDAP/MAIS Code: 333		

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	3	-	-	-	-	-	-	-	-	1	-	4
Gross/Weapon System Cost *($ in Millions)*	10,290.292	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4,076.400	-	14,366.692
Less PY Advance Procurement *($ in Millions)*	1,148.630	-	-	-	-	-	-	-	-	520.602	-	1,669.232
Less Cost To Complete *($ in Millions)*	247.788	-	-	-	-	-	-	-	-	-	-	247.788
Less Subsequent Year Full Funding *($ in Millions)*	5,005.404	-	-	-	-	-	-	-	-	1,937.964	-	6,943.368
Less Hurricane *($ in Millions)*	202.000	-	-	-	-	-	-	-	-	-	-	202.000
Net Procurement (P-1) *($ in Millions)*	3,686.470	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,617.834	-	5,304.304
Plus Subsequent Year Full Funding *($ in Millions)*	3,294.477	1,710.927	-	-	-	-	-	-	-	-	1,937.964	6,943.368
Full Funding TOA *($ in Millions)*	6,980.947	1,710.927	-	-	-	-	-	-	-	1,617.834	1,937.964	12,247.672
Plus CY Advance Procurement *($ in Millions)*	1,148.630	-	350.000	-	-	-	-	-	170.602	-	-	1,669.232
Plus Cost To Complete *($ in Millions)*	208.488	14.200	25.100	-	-	-	-	-	-	-	-	247.788
Plus Hurricane *($ in Millions)*	202.000	-	-	-	-	-	-	-	-	-	-	202.000
Total Obligation Authority *($ in Millions)*	**8,540.065**	**1,725.127**	**375.100**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**170.602**	**1,617.834**	**1,937.964**	**14,366.692**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	123.703	16.211	32.569	11.361	-	11.361	-	-	-	-	-	183.844
Total *($ in Millions)*	**8,663.768**	**1,741.338**	**407.669**	**11.361**	**-**	**11.361**	**-**	**-**	**170.602**	**1,617.834**	**1,937.964**	**14,550.536**
Gross/Weapon System Unit Cost *($ in Millions)*	3,430.097	-	-	-	-	-	-	-	-	4,076.400	-	3,591.673

Description:

The LHA(R) Program replaces the Tarawa Class (LHA 1) Amphibious Assault Ships and the retiring Wasp Class (LHD 1) Amphibious Assault Class Ships. The LHA(R) class program ensures that the Amphibious Fleet remains capable of Expeditionary Warfare well into the 21st Century and provide for an affordable and sustainable amphibious ship development program. Provides forward presence and power projection as an integral part of joint, interagency, and multinational maritime expeditionary forces. Operates for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force and supporting forces by helicopters and tilt rotors supported by Joint Strike Fighters F-35B.

LHA(R) Flight 0 is considered a transitional increment intended to increase the aviation capabilities of amphibious assault ships. The LHA(R) Flight 1 design continues the incremental development of amphibious assault ships by adding a well deck, and increasing flight deck capacity by reducing the footprint of the island and adding a sponson. LHA(R) Flight 0 consisted of two ships, LHA 6 and LHA 7. LHA(R) Flight 1 is the second increment in the LHA 6 Class with LHA 8 being the first ship of Flight 1. Advance Procurement funds in FY 2019 & FY 2023 and the first increment of Full Funding in FY24 are for the second Flight 1 ship, LHA 9.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3041 / LHA Replacement	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604567N
Line Item MDAP/MAIS Code: 333		

Characteristics:

	LHA 7	LHA 8
Length Overall	844ft	844ft
Beam	106ft	106ft
Displacement	45,594 tons	43,000 tons
Draft	29ft 1in	27ft 8in

Systems:

Electronics

-Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR)
-MK 2 MOD 4E Ship Self Defense System (SSDS)
-Integrated Voice Network (IVN)
-AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP)
-AN/SPN-50 (V)1
-Joint Precision Approach and Landing System (JPALS)
-Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55
-AN/UPX-29(V), Identification Friend or Foe (IFF) MK12
-Ring Laser Gyro Navigator (RLGN) AN/WSN-7
-Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42
-Aircraft Control Approach Central AN/SPN-35C
-Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B

Ordnance

-Enterprise Air Surveillance Radar (EASR)
-NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14
-MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh)
-PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS)
-Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS)
-AN/SPQ-9B Radar Set

Production Status:	LHA 7	LHA 8
Contract Award Date	May 2012	Jun 2017
Months to Completion		
a) Award to Delivery	85 months	79 months
b) Construction Start to Delivery	71 months	63 months
Delivery Date	Jun 2019	Jan 2024
Completion Of Fitting Out	Jun 2020	Sep 2024
Obligation Work Limit Date	May 2021	Aug 2025

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Nov 2011	Mar 2013		
Contract Design	Mar 2013	Sep 2014		
Detail Design	Jun 2017	Mar 2019		
Request for Proposals	Jun 2015	Dec 2015		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships		P-1 Line Item Number / Title: 3041 / LHA Replacement	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604567N	
Line Item MDAP/MAIS Code: 333			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Design Agent	Huntington Ingalls Inc.			

Classification of Cost Estimate: CLASS C

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy		**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement	

Cost Categories (†) indicates the presence of a P-8a	**FY 2011**		**FY 2017**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	1	60.084	1	329.093
Basic Construction/Conversion		2,538.275		2,770.836
Change Orders		130.528		97.790
Electronics (†)		258.621		314.754
Hull, Mechanical, and Electrical (HM&E) (†)		56.013		63.184
Ordnance (†)		112.684		158.708
Other Cost		95.088		99.917
Total Ship Estimate		**3,251.293**		**3,834.282**
Less Advance Procurement FY 2009		176.351		-
Less Advance Procurement FY 2010		169.320		-
Less Advance Procurement FY 2015		-		29.093
Less Advance Procurement FY 2016		-		476.543
Less Subsequent Full Funding FY 2012		1,928.692		-
Less Subsequent Full Funding FY 2018		-		1,710.927
Less Cost to Complete FY 2018		14.200		-
Less Cost to Complete FY 2019		25.100		-
Net P-1 Funding		**937.630**		**1,617.719**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		P-1 Line Item Number / Title: 3041 / LHA Replacement			
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LHA 7	HII	2011	May 2012	Jul 2013	Jun 2019
LHA 8	HII	2017	Jun 2017	Oct 2018	Jan 2024
LHA 9	TBD	2024	Feb 2024	Apr 2025	Sep 2030

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

Electronics	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
P-35 Items		
Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR)	1	147.479
MK 2 MOD 4E Ship Self Defense System (SSDS)	1	26.185
Integrated Voice Network (IVN)	1	16.165
AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP)	1	15.513
AN/SPN-50 (V)1	1	11.145
Joint Precision Approach and Landing System (JPALS)	1	7.893
Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55	1	7.503
AN/UPX-29(V), Identification Friend or Foe (IFF) MK12	1	6.993
Ring Laser Gyro Navigator (RLGN) AN/WSN-7	1	6.002
Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42	1	5.729
Aircraft Control Approach Central AN/SPN-35C	1	4.548
Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B	1	4.397
P-35 Items Subtotal		**259.552**
Major Items		
AN/USG-2, Cooperative Engagement Transmission Processing Set (CETPS)	1	10.397
USQ-82, Gigabit Ethernet Data Multiplex System (GEDMS)	1	6.525
AN/SLQ-25C, Torpedo Countermeasures Transmitting Set (NIXIE)	2	6.211
AN/USQ-T46(V), Battle Force Tactical Training (BFTT)	1	4.002
Announcing Systems AN/SIA-127H	1	3.007
SATCC	1	2.035
Amphibious Assault Direction System (AADS)	1	1.949
Digital Photo Lab	1	1.870
MK 53 NULKA Decoy Launching System (DLS) Mod 3	1	1.725
Print Shop	1	1.539
30 TV	1	1.263
Next Generation Navigational Radar	1	1.173
Major Items Subtotal		**41.696**
Other Cost Elements		
Miscellaneous Electronics		13.506
Other Cost Elements Subtotal		**13.506**
Total Electronics		**314.754**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

Remarks:
For LHA(R) Flight 1 ships:

- Enterprise Air Surveillance Radar (EASR) suite will be a modern, long-range, three-dimensional (3-D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The LHA(R) Flight 1 configuration includes a rotating antenna array, below decks radar and cooling equipment. The EASR suite replaces the SPS 48/49 air-search radar systems. AN/SPS-48 air search radars have not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships. Without the EASR suite, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.

- AN/SPN-50 Shipboard Air Traffic Radar (SATR) system provides aircraft position, radar signal and radar data. Air traffic controllers use the data for aircraft sequencing and separation, airspace identification and containment, safety alerts, traffic advisories and landing guidance. AN/SPN-50 SATR replaces the AN/SPN 43C SATR. EASR and AN/SPN-50 are designed to be integrated systems whereas EASR and AN/SPN 43C are not as compatible.

- The dual mast antenna configuration Cooperative Engagement Transmission Processing Set (CETPS) replaces the single mast CETPS. The CETPS dual mast antenna configuration improves the compatibility with AN/SPN-50 and allows the ship to maintain 360-degree data link coverage and full combat systems capability.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

Hull, Mechanical, and Electrical (HM&E)	FY 2017	
	Qty *(Each)*	Total Cost *($ M)*
Major Items		
Equipment & Engineering		50.738
SUPSHIP Material/Services		4.196
Test & Instrumentation		8.250
Major Items Subtotal		**63.184**
Total Hull, Mechanical, and Electrical (HM&E)		**63.184**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

Ordnance	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
P-35 Items		
Enterprise Air Surveillance Radar (EASR)	1	40.063
NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14	1	32.302
MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh)	2	15.743
PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS)	1	14.431
Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS)	1	13.824
AN/SPQ-9B Radar Set	1	10.909
P-35 Items Subtotal		**127.272**
Major Items		
MK 38 Mod 2 Stabilized Gun Stand Assembly	3	6.145
AN/SPQ-14	1	2.537
MORIAH	1	1.762
Major Items Subtotal		**10.444**
Other Cost Elements		
Aviation Support		7.745
Miscellaneous Ordnance		2.800
Total Ship Test Program		10.447
Other Cost Elements Subtotal		**20.992**
Total Ordnance		**158.708**

Remarks:

The $15.89M cost increase from PB 2017 was based on the initial contract award contract costs for the Enterprise Air Surveillance Radar (EASR) suite. EASR is the replacement for the AN/SPS-48 air-search radar that has not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships, without the EASR, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR)	**PARM Code:** PEO C4I

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	89.070
Technical Data and Documentation		0.965
Spares		2.319
System Engineering		14.809
Technical Engineering Services		23.962
Other Costs		16.354
Total	**1**	**147.479**

Description:

The Command, Control, Communication, Computer Intelligence Surveillance and Reconnaissance (C4ISR) system is used to prove the link between the ship, the command hierarchy, and other units of the operating forces.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	Various	Various	Various	1	89.070

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	0		Various

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: MK 2 MOD 4E Ship Self Defense System (SSDS)	**PARM Code:** PEO IWS1A5

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	8.414
Technical Data and Documentation		1.483
Spares		0.808
System Engineering		5.590
Technical Engineering Services		0.468
Other Costs		9.422
Total	**1**	**26.185**

Description:

The Ship Self Defense System (SSDS) MK 2, Mod (x) Common C2 system provides capabilities for multi-mission requirements including Ship Protection against air, surface, and subsurface threats using both own-ship and remote data (Joint Composite Track Number (JCTN) and Joint Data Network (JDN)) in support of the Anti-Air Warfare (AAW) Capstone requirements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	C/FFP	Nov 2018	New	1	8.414

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	38	24	Nov 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Integrated Voice Network (IVN)	**PARM Code:** SEA05H

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	12.650
Technical Data and Documentation		0.500
System Engineering		0.760
Technical Engineering Services		1.570
Other Costs		0.685
Total	**1**	**16.165**

Description:

The Integrated Voice Communications Network (IVCN) is an overarching engineering approach to establish consistent engineering practices and integrated voice communication capabilities across the Fleet. IVN is a fully integrated, supportable communication voice solution.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	C/FFP	Jan 2019	New	1	12.650

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	54	6	Jan 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: AN/SLQ-32(V), Surface Warfare Improvement Program (SEWIP)	**PARM Code:** PEO IWS2E

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	13.421
Technical Data and Documentation		0.039
Spares		0.498
System Engineering		0.919
Technical Engineering Services		0.118
Other Costs		0.518
Total	**1**	**15.513**

Description:

SEWIP Block 2 is a scalable Electronic Warfare enterprise suite to provide improved Electromagnetic Interference (EMI) mitigation and Combat System Interface capabilities to select new construction ships as well as upgrade current AN/SLQ-32(V)3 and (V)4 Electronic Warfare (EW) suites on existing ships. It provides enhanced shipboard Electronic Warfare (EW) for early detection, analysis, threat warning and protection from anti-ship missiles. SEWIP Block 2 focused on Electronic Support (ES) capability improvements.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	Various	Mar 2019	New	1	13.421

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	30	18	Jan 2020

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: AN/SPN-50 (V)1	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	9.014
Technical Data and Documentation		0.120
Spares		0.716
System Engineering		0.703
Technical Engineering Services		0.095
Other Costs		0.497
Total	**1**	**11.145**

Description:

AN/SPN-50 Shipboard Air Traffic Radar (SATR) system provides aircraft position, radar signal and radar data. Air traffic controllers use the data for aircraft sequencing and separation, airspace identification and containment, safety alerts, traffic advisories and landing guidance.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	SAAB	C/FFP	Jan 2020	New	1	9.014

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	24	24	Jan 2020

Competition/Second Source Initiatives:

N/A

Remarks:

AN/SPN-50 SATR system replaces the AN/SPN 43C SATR. EASR and AN/SPN-50 are designed to be integrated systems whereas EASR and AN/SPN 43C are not as compatible.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Joint Precision Approach and Landing System (JPALS)	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	4.898
Spares		0.914
System Engineering		0.739
Technical Engineering Services		1.075
Other Costs		0.267
Total	**1**	**7.893**

Description:

The Joint Precision Approach Landing System (JPALS) works with the GPS satellite navigation system to provide accurate, reliable and high-integrity guidance for F-35 and future JPALS equipped aircraft. The system features anti-jam protection to ensure mission continuity in hostile environments. JPALS is a differential GPS that will provide an adverse weather precision approach and landing capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	TBD	TBD	May 2019	New	1	4.898

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	44	12	May 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Hierarchical Yet Dynamically Reprogrammable Architecture (HYDRA) AN/SRC-55	**PARM Code:** SEA05H

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	4.542
Technical Data and Documentation		0.301
Spares		0.093
System Engineering		1.139
Technical Engineering Services		0.642
Other Costs		0.786
Total	**1**	**7.503**

Description:

AN/SRC-55 HYDRA is a Wireless Interior Communications System that provides wire free mobile communications throughout the ship. HYDRA supports security, navigation, combat systems, engineering, damage control, maintenance and general operations such as maneuvering and docking, shore patrol and beach guard. It is interoperable with other shipboard communication systems and it has improved capabilities over the legacy wireless systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	Various	Jul 2020	New	1	4.542

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	36	6	Jul 2020

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: AN/UPX-29(V), Identification Friend or Foe (IFF) MK12	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	6.061
Spares		0.106
System Engineering		0.293
Technical Engineering Services		0.103
Other Costs		0.430
Total	**1**	**6.993**

Description:

Identification Friend or Foe (IFF) is an approved and fully supported centralized Mark XII Interrogator system. It uses one receiver transmitter that synchronizes video with up to four radar sweeps. It supplies synthetic video (symbology) to, and accepts requests from, as many as 22 remote locations. It provides digital target reporting to the combat systems/weapon systems computer via full scan, sectored, and/or pop-up interrogations. It provides instantaneous target reporting at requested range and azimuth through the use of an electronically-steered Antenna Group OE-120/UPX or OE-120A/UPX.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	C/FFP	Feb 2019	New	1	6.061

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	35	24	Feb 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Ring Laser Gyro Navigator (RLGN) AN/WSN-7	**PARM Code:** PEO IWS6.0

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	5.491
System Engineering		0.072
Technical Engineering Services		0.300
Other Costs		0.139
Total	**1**	**6.002**

Description:

The AN/WSN-7(V) Ring Laser Gyro Navigation System provides real-time navigation data for use by navigation and combat systems.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Northrop Grumman Systems Corp.	C/FFP	May 2018	New	1	5.491

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	38	18	May 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Amphibious Air Traffic Control Direct Altitude and Identity Readout (AATC-DAIR) AN/TPX-42	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	4.246
Spares		0.208
System Engineering		0.506
Technical Engineering Services		0.056
Other Costs		0.713
Total	**1**	**5.729**

Description:

The Amphibious Air Traffic Control (AATC) Direct Altitude and Identity Readout (DAIR) is an automatic beacon and radar that when integrated with an air traffic control radar, provides numeric and symbolic displays of position, identity, and altitude of aircraft in the terminal airspace on an operator's Plane Position Indicator (PPI) display.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	NAWCAD	WR	Jul 2018	New	1	4.246

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	30	24	Jul 2019

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Aircraft Control Approach Central AN/SPN-35C	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	3.529
System Engineering		0.603
Technical Engineering Services		0.083
Other Costs		0.333
Total	**1**	**4.548**

Description:

The AN/SPN-35 is a precision approach radar that provides glide slope guidance to Navy and Marine Corps aircraft. The system is used in conjunction with a vertical/short take-off and landing, optical landing system and the AN/SPN-41 Instrument Control Landing System for precision landing operations. It is also used for aircraft recovery during adverse weather and night conditions.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	NAWCAD	WR	Jul 2018	New	1	3.529

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	30	36	Jul 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Aircraft Approach Control Transmitting Set (AACTS) AN/SPN-41B	**PARM Code:** NAVAIR PMA213

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	3.381
System Engineering		0.622
Technical Engineering Services		0.063
Other Costs		0.331
Total	**1**	**4.397**

Description:

The AN/SPN-41 transmitting set is an electronic instrument control landing system that provides proper flight path data to an approaching aircraft. The AN/SPN-41 has two separate transmitters (azimuth and elevation) with
individual antennas used for sector scanning. It provides primary or backup instrument approach capability.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	NAWCAD	WR	Jun 2018	New	1	3.381

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	40	27	Jun 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Enterprise Air Surveillance Radar (EASR)	**PARM Code:** PEO IWS2.0

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	28.932
Technical Data and Documentation		0.042
Spares		1.337
System Engineering		0.472
Technical Engineering Services		3.436
Other Costs		5.844
Total	**1**	**40.063**

Description:

Enterprise Air Surveillance Radar (EASR) suite will be a modern, long-range, three-dimensional (3-D) radar used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system and Air Traffic Control (ATC) system. The LHA(R) Flight 1 configuration includes a rotating antenna array, below decks radar and cooling equipment. Without the EASR suite, LHA(R) Flight 1 ships will not have an air-search radar for self-defense and airspace deconfliction.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	Various	Various	Jun 2019	New	1	28.932

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	31	24	Jun 2019

Competition/Second Source Initiatives:

N/A

Remarks:

The $15.89M cost increase from PB 2017 was based on the initial contract award contract costs for the EASR suite. The EASR suite is the replacement for the AN/SPS-48 air-search radar that has not been in production for several years. All existing AN/SPS-48 radars are installed on operational Fleet ships, without the EASR suite.

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: NATO Sea Sparrow Missile System (NSSMS) MK 57 Mod 14	**PARM Code:** PEO IWS3.0

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	21.343
Spares		1.437
System Engineering		1.486
Technical Engineering Services		3.118
Other Costs		4.918
Total	**1**	**32.302**

Description:

The NSSMS MK 57 is a short-range weapon system, which provides self-defense capability against air-to-surface missiles, surface-to-surface missiles, manned attack aircraft, and surface craft. The system is designed to provide these capabilities under both clear and adverse environmental conditions as well as in a hostile electronics attack environment. NSSMS MK 57 performs target engageability; and provides launcher control, missile control and missing firing orders.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Apr 2018	New	1	21.343

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	33	36	Apr 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: MK31 Mod 3, Rolling Airframe Missile (RAM) (Tech Refresh)	**PARM Code:** PEO IWS3B

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	2	10.954
Technical Data and Documentation		0.663
Spares		0.103
System Engineering		2.145
Technical Engineering Services		0.083
Other Costs		1.795
Total	**2**	**15.743**

Description:

The MK 49 Mod 3 Rolling Airframe Missile (RAM) Weapon System is a lightweight, low cost, high power system for anti-ship missile defense against current and evolving threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Dec 2018	New	2	5.477

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	37	24	Dec 2018

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: PHALANX Block 1B MK15 Mod 21 & 22, Close-in Weapon System (CIWS)	**PARM Code:** PEO IWS3.0

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	11.627
Technical Data and Documentation		0.098
Spares		0.383
System Engineering		0.514
Technical Engineering Services		0.720
Other Costs		1.089
Total	**1**	**14.431**

Description:
Phalanx is a high fire rate Close-In Weapon System (CIWS) that automatically acquires, tracks and destroys Anti-Ship cruise missiles, Helos, Aircraft, and all types of Surface threats.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	RAYTHEON	C/FFP	Aug 2016	New	1	11.627

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	47	24	Feb 2018

Competition/Second Source Initiatives:
N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: Vertical/Stationary Take-Off Landing Optical Landing System (VSTOL OLS)	**PARM Code:** NAVAIR PMA251

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	11.700
Technical Data and Documentation		0.150
Spares		0.413
System Engineering		0.319
Technical Engineering Services		0.781
Other Costs		0.461
Total	**1**	**13.824**

Description:

The Vertical/Stationary Take-Off Landing (VSTOL) Optical Landing System is a visual landing aid that displays glide path and trend information to the VSTOL pilot preparing to land on ship. The system can guide an aircraft to the ship from a distance of 0.8 nautical miles. The OLS guides the aircraft to 50 feet above the flight deck up to the final approach phase.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	LAKEHURST MANUFACTURING	WR	Jul 2017	New	1	11.700

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	30	48	Jul 2017

Competition/Second Source Initiatives:

N/A

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement
Equipment Item: AN/SPQ-9B Radar Set	**PARM Code:** PEO IWS2B

P-35 Category	FY 2017 Qty (Each)	FY 2017 Total Cost ($ M)
Major Hardware	1	8.890
Technical Data and Documentation		0.115
Spares		0.129
System Engineering		0.365
Technical Engineering Services		0.684
Other Costs		0.726
Total	**1**	**10.909**

Description:

The AN/SPQ-9B is an X-Band Horizon Search, pulse Doppler, frequency agile radar designed for the littoral environment. It has a very high clutter improvement factor supporting a very low false track rate in the littorals and in high clutter environments.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2017	LHA 8	LEONARDO DRS	C/FFP	Apr 2018	New	1	8.890

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2017	LHA 8	Jan 2024	30	24	Jul 2019

Competition/Second Source Initiatives:

N/A

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Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

First System (2020) Award Date:	First System (2020) Completion Date:	Interval Between Systems:
June 2019		0 Months

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
CFE									
PLANS	-	JUN-19	-	20.300	0.000	-	-	-	-
BASIC	-	JUN-19	-	139.620	0.000	-	-	170.602	-
Port Deck Edge Elevator Machinery	48	MAY-23	-	34.320	0.000	-	-	-	-
Steering Gear	46	AUG-23	-	5.020	0.000	-	-	-	-
S/S Diesel Generators	43	OCT-22	-	48.430	0.000	-	-	-	-
Main Reduction Gear	40	APR-22	-	42.760	0.000	-	-	-	-
Oily Waste Ultrafiltration System	37	OCT-22	-	2.570	0.000	-	-	-	-
A/C Chilled Water Plant	34	MAR-22	-	24.270	0.000	-	-	-	-
450/60Hz Switchboard	32	OCT-23	-	32.710	0.000	-	-	-	-
Total: CFE			-	*350.000*	-	-	-	*170.602*	-
Total Advance Procurement/Obligation Authority			**-**	**350.000**	**-**	**-**	**-**	**170.602**	**-**

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

Cost Elements	FY 2020 Production Leadtime (Months)	When Required* (Months)	Unit Cost ($ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request ($ M)
CFE							
PLANS	-	JUN-19	-	Jun 2019	-		0.000
BASIC	-	JUN-19	-	Jun 2019	-		0.000
Port Deck Edge Elevator Machinery	48	MAY-23	-	Jun 2019	-		0.000
Steering Gear	46	AUG-23	-	Jun 2019	-		0.000
S/S Diesel Generators	43	OCT-22	-	Jun 2019	-		0.000
Main Reduction Gear	40	APR-22	-	Jun 2019	-		0.000
Oily Waste Ultrafiltration System	37	OCT-22	-	Jun 2019	-		0.000
A/C Chilled Water Plant	34	MAR-22	-	Jun 2019	-		0.000
450/60Hz Switchboard	32	OCT-23	-	Jun 2019	-		0.000
Total: CFE							-
Total Advance Procurement/Obligation Authority							**-**

Description:
*Note - This is an estimated plan based on a FY21 Ship, which is not part of the Navy's current Program of Record.

PLANS - ($20.3M) Funds required for non-recurring engineering.
BASIC - ($329.7M) Procurement of Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production and completion of design integration efforts.

PLANS - Non-recurring engineering

Port Deck Edge Elevator Machinery - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Steering Gear - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

S/S Diesel Generators - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Main Reduction Gear - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

Oily Waste Ultrafiltration System - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

A/C Chilled Water Plant - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

450/60Hz Switchboard - Long Lead Time Contractor Furnished Equipment (CFE) to support in-yard need dates for ship production.

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3041 / LHA Replacement

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	8	1	1	-	-	-	-	-	-	-	-	10
Gross/Weapon System Cost *($ in Millions)*	1,571.897	225.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,021.897
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Less Cost To Complete *($ in Millions)*	61.090	-	-	-	-	-	-	-	-	-	-	61.090
Less Program Support *($ in Millions)*	2.732	-	-	-	-	-	-	-	-	-	-	2.732
Net Procurement (P-1) *($ in Millions)*	1,508.075	225.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,958.075
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Plus Cost To Complete *($ in Millions)*	61.090	-	-	-	-	-	-	-	-	-	-	61.090
Plus Program Support *($ in Millions)*	2.732	-	-	-	-	-	-	-	-	-	-	2.732
Total Obligation Authority *($ in Millions)*	**1,571.897**	**225.000**	**225.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**2,021.897**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	75.138	6.624	9.018	2.403	-	2.403	4.233	-	-	-	-	97.416
Total *($ in Millions)*	**1,647.035**	**231.624**	**234.018**	**2.403**	**-**	**2.403**	**4.233**	**-**	**-**	**-**	**-**	**2,119.313**
Gross/Weapon System Unit Cost *($ in Millions)*	196.487	225.000	225.000	-	-	-	-	-	-	-	-	202.190

Description:

Future joint forces will be responsive, deployable, agile, versatile, lethal, survivable, and sustainable. The nation will need lift assets that can provide for assured access, decrease predictability and dwell time, and have the capacity to quickly deliver troops and equipment together in a manner that provides for unit integrity. Expeditionary Fast Transport (EPF) (formerly Joint High Speed Vessel) will provide combatant commanders high-speed intra-theater sealift with inherent cargo handling capability and the agility to achieve positional advantage over operational distances. Not limited to major ports, the EPF will be able to operate in austere port environments.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Characteristics: **Aluminum Catamaran**

Length Overall	338 ft
Beam	93.5 ft
Displacement	2359 Long Tons
Draft	12.5 ft

Systems:
Electronics
-C4ISR

Production Status:	**EPF 11**	**EPF 12**	**EPF 13**	**EPF 14**
Contract Award Date	Sep 2016	Sep 2016	Mar 2019	Mar 2019
Months to Completion				
a) Award to Delivery	31 months	41 months	32 months	40 months
b) Construction Start to Delivery	27 months	29 months	24 months	24 months
Delivery Date	Apr 2019	Feb 2020	Nov 2021	Jul 2022
Completion Of Fitting Out	Jul 2019	May 2020	Feb 2022	Oct 2022
Obligation Work Limit Date	Jun 2020	Apr 2021	Jan 2023	Sep 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Jan 2007	Jul 2008		
Contract Design	Jan 2007	Jul 2008		
Detail Design	Nov 2008	Dec 2009		
Request for Proposals	N/A	N/A		
Design Agent				

Classification of Cost Estimate: CLASS C

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)

Cost Categories (†) indicates the presence of a P-8a	**FY 2015**		**FY 2016**		**FY 2018**		**FY 2019**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	1		1		1		1	
Basic Construction/Conversion		169.795		176.610		178.000		178.000
Change Orders		4.855		4.960		5.000		5.000
Electronics (†)		14.985		16.840		17.000		17.000
Hull, Mechanical, and Electrical (HM&E) (†)		5.908		14.050		13.000		13.000
Other Cost		4.457		12.540		12.000		12.000
Total Ship Estimate		**200.000**		**225.000**		**225.000**		**225.000**
Net P-1 Funding		**200.000**		**225.000**		**225.000**		**225.000**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3043 / Expeditionary Fast Transport (EPF)		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
EPF 11	AUSTAL	2015	Sep 2016	Jan 2017	Apr 2019
EPF 12	AUSTAL	2016	Sep 2016	Sep 2017	Feb 2020
EPF 13	AUSTAL	2018	Mar 2019	Nov 2019	Nov 2021
EPF 14	AUSTAL	2019	Mar 2019	Jul 2020	Jul 2022

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)

Electronics	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
P-35 Items				
C4ISR	1	13.227	1	13.227
P-35 Items Subtotal		**13.227**		**13.227**
Major Items				
VISUAL LANDING AIDE SUITE	1	3.004	1	3.004
MISC ELECTRONICS		0.769		0.769
Major Items Subtotal		**3.773**		**3.773**
Total Electronics		**17.000**		**17.000**

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Items				
ENGINEERING SERVICES		8.235		8.235
SUPSHIP MATERIAL SERVICES		1.978		1.978
LOGISTICS SUPPORT SERVICES		1.830		1.830
TEST AND INSTRUMENTATION		0.957		0.957
Major Items Subtotal		**13.000**		**13.000**
Total Hull, Mechanical, and Electrical (HM&E)		**13.000**		**13.000**

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1	**P-1 Line Item Number / Title:** 3043 / Expeditionary Fast Transport (EPF)
Equipment Item: C4ISR	**PARM Code:** 3Z (SPAWAR)

P-35 Category	FY 2018 Qty (Each)	FY 2018 Total Cost ($ M)	FY 2019 Qty (Each)	FY 2019 Total Cost ($ M)
Major Hardware	1	7.969	1	7.969
Spares		0.646		0.646
System Engineering		2.479		2.479
Technical Engineering Services		1.060		1.060
Other Costs		1.073		1.073
Total	**1**	**13.227**	**1**	**13.227**

Description:

The Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) system provides the line between the ship, the command hierarchy and other units of the operation force. The C4ISR Suite consists of a Network Suite (ISNS, ADNS and CENTRIXS-M), CBSP, UHF SATCOM Antenna, UHF/VHF LOS Suite and UHF SATCOM Radios, TVS-TVT, IA and RCS.

The FY18 EPF 13 and FY19 EPF 14 replaces ISNS with MSC-CANES.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	EPF 13	Various	Various	Jan 2019	Various	1	7.969
FY 2019	EPF 14	Various	Various	Jan 2019	Various	1	7.969

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	EPF 13	Nov 2021	0		Various
FY 2019	EPF 14	Jul 2022	0		Various

Competition/Second Source Initiatives:

N/A

Remarks:

Multiple systems comprise the C4ISR with varying delivery dates and lead times. SPAWAR PMW760 is the coordinating activity for the C4ISR System.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3036 / LPD-17
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	13	-	-	-	-	-	-	-	-	-	-	13
Gross/Weapon System Cost *($ in Millions)*	21,372.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	21,372.232
Less PY Advance Procurement *($ in Millions)*	1,636.241	-	-	-	-	-	-	-	-	-	-	1,636.241
Less Cost To Complete *($ in Millions)*	2,113.707	-	-	-	-	-	-	-	-	-	-	2,113.707
Less Subsequent Year Full Funding *($ in Millions)*	869.394	-	-	-	-	-	-	-	-	-	-	869.394
Less Prior Year Full Funding *($ in Millions)*	1,000.000	-	-	-	-	-	-	-	-	-	-	1,000.000
Less Hurricane *($ in Millions)*	1,623.280	-	-	-	-	-	-	-	-	-	-	1,623.280
Less Transfer *($ in Millions)*	279.031	-	-	-	-	-	-	-	-	-	-	279.031
Net Procurement (P-1) *($ in Millions)*	13,850.579	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	13,850.579
Plus Subsequent Year Full Funding *($ in Millions)*	869.394	-	-	-	-	-	-	-	-	-	-	869.394
Plus Prior Year FF *($ in Millions)*	1,000.000	-	-	-	-	-	-	-	-	-	-	1,000.000
Full Funding TOA *($ in Millions)*	15,719.973	-	-	-	-	-	-	-	-	-	-	15,719.973
Plus CY Advance Procurement *($ in Millions)*	1,636.241	-	-	-	-	-	-	-	-	-	-	1,636.241
Plus Cost To Complete *($ in Millions)*	2,050.608	-	-	-	-	-	39.278	19.000	4.821	-	-	2,113.707
Plus Transfer *($ in Millions)*	279.031	-	-	-	-	-	-	-	-	-	-	279.031
Plus Hurricane *($ in Millions)*	1,623.280	-	-	-	-	-	-	-	-	-	-	1,623.280
Plus Hurricane Supplemental (OF & PD) *($ in Millions)*	25.970	-	-	-	-	-	-	-	-	-	-	25.970
Total Obligation Authority *($ in Millions)*	**21,309.133**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**39.278**	**19.000**	**4.821**	**0.000**	**-**	**21,372.232**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	964.919	23.144	1.988	18.665	-	18.665	14.886	15.031	8.215	8.380	120.082	1,175.310
Total *($ in Millions)*	**22,300.022**	**23.144**	**1.988**	**18.665**	**-**	**18.665**	**54.164**	**34.031**	**13.036**	**8.380**	**120.082**	**22,573.512**
Gross/Weapon System Unit Cost *($ in Millions)*	1,644.018	-	-	-	-	-	-	-	-	-	-	1,644.018

Description:

Functional replacement for LKA 113, LPD 4, LSD 36, and LST 1179 classes of Amphibious Ships in embarking, transporting, and landing elements of a Marine landing force in an assault by helicopters, landing craft, amphibious vehicles, and by a combination of these methods to conduct primary amphibious warfare missions.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 03: Amphibious Ships / BSA 1: Amphibious Ships	**P-1 Line Item Number / Title:** 3036 / LPD-17	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Characteristics:

	-	
Length Overall	208.5 m	684 ft
Beam	31.9 m	105 ft
Displacement	25.3 lmt	24.9 klt
Draft	7.0 m	23 ft

Systems:

Electronics
-Mission Systems

Production Status:	LPD 28	LPD 29
Contract Award Date	Dec 2016	Feb 2018
Months to Completion		
a) Award to Delivery	57 months	65 months
b) Construction Start to Delivery	57 months	60 months
Delivery Date	Sep 2021	Jul 2023
Completion Of Fitting Out	Feb 2022	Mar 2024
Obligation Work Limit Date	Jan 2023	Feb 2025

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	Sep 1988		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Jan 1993	Nov 1993		
Contract Design	Dec 1993	Mar 1996		
Detail Design	Dec 1996	Jul 2002		
Request for Proposals	N/A	N/A		
Design Agent				

Classification of Cost Estimate: CLASS C

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			**Date:** March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1		**P-1 Line Item Number / Title:** 3036 / LPD-17		
Cost Categories (†) indicates the presence of a P-8a	**FY 2016**		**FY 2017**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs				
Basic Construction/Conversion		1,478.976		1,435.821
Change Orders		35.000		29.000
Electronics (†)		198.547		233.276
Hull, Mechanical, and Electrical (HM&E) (†)		15.826		21.494
Ordnance (†)		64.023		102.230
Other Cost		5.976		7.000
Total Ship Estimate		**1,798.348**		**1,828.821**
Less Advance Procurement FY 2013		242.976		-
Less Cost to Complete FY 2021		20.278		19.000
Less Cost to Complete FY 2022		-		19.000
Less Cost to Complete FY 2023		-		4.821
Less Prior Year Full Funding FY 2015		1,000.000		-
Net P-1 Funding		**535.094**		**1,786.000**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 03 / 1			P-1 Line Item Number / Title: 3036 / LPD-17		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LPD 28	HUNTINGTON INGALLS INDUSTRIES	2016	Dec 2016	Dec 2016	Sep 2021
LPD 29	HUNTINGTON INGALLS INDUSTRIES	2017	Feb 2018	Jul 2018	Jul 2023

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: P452

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	1	1	2	2	-	2	1	1	2	1	9	20
Gross/Weapon System Cost *($ in Millions)*	689.639	534.767	1,052.172	1,056.261	0.000	1,056.261	512.561	520.570	1,099.800	557.820	6,172.510	12,196.100
Less PY Advance Procurement *($ in Millions)*	-	73.079	75.068	75.046	-	75.046	73.000	73.000	74.000	75.500	77.000	595.693
Less Cost To Complete *($ in Millions)*	15.449	3.700	-	-	-	-	-	-	-	-	-	19.149
Net Procurement (P-1) *($ in Millions)*	674.190	457.988	977.104	981.215	0.000	981.215	439.561	447.570	1,025.800	482.320	6,095.510	11,581.258
Plus CY Advance Procurement *($ in Millions)*	73.079	75.068	75.046	73.000	-	73.000	73.000	74.000	75.500	77.000	-	595.693
Plus Cost To Complete *($ in Millions)*	-	-	15.449	3.700	-	3.700	-	-	-	-	-	19.149
Total Obligation Authority *($ in Millions)*	**747.269**	**533.056**	**1,067.599**	**1,057.915**	**0.000**	**1,057.915**	**512.561**	**521.570**	**1,101.300**	**559.320**	**6,095.510**	**12,196.100**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	-	-	17.712	21.732	-	21.732	45.859	40.835	34.749	35.445	463.428	659.760
Total *($ in Millions)*	**747.269**	**533.056**	**1,085.311**	**1,079.647**	**-**	**1,079.647**	**558.420**	**562.405**	**1,136.049**	**594.765**	**6,558.938**	**12,855.860**
Gross/Weapon System Unit Cost *($ in Millions)*	689.639	534.767	526.086	528.131	-	528.131	512.561	520.570	549.900	557.820	685.834	609.805

Description:

T-AO 205 John Lewis Fleet Oiler Class will recapitalize the existing T-AO 187 fleet oiler class. The Navy's Combat Logistics Force (CLF) oilers supply fuel and dry cargo to Navy ships at sea. The T-AO Class will operate as a shuttle ships from resupply posts to customer ships. Additionally, in conjunction with a T-AKE, they will accompany and stay on-station with a Carrier Strike Group (CSG) to provide fuel as required to customer ships.

Note:
FY 2020 Cost to Complete funds prior year FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.

Characteristics:

	T-AO	
Length Overall	746 ft	
Beam	106 ft	
Displacement	22,515 MT	(Lightship)
Draft	33.5 ft	(Design)

Production Status:	T-AO 205	T-AO 206	T-AO 207	T-AO 208	T-AO 209	T-AO 210
Contract Award Date	Jun 2016	Mar 2018	Dec 2018	Dec 2018	Jan 2020	Jan 2020
Months to Completion						
a) Award to Delivery	53 months	42 months	43 months	48 months	47 months	52 months
b) Construction Start to Delivery	26 months	26 months	25 months	25 months	25 months	25 months
Delivery Date	Nov 2020	Sep 2021	Jul 2022	Dec 2022	Dec 2023	May 2024
Completion Of Fitting Out	Feb 2021	Dec 2021	Oct 2022	Mar 2023	Mar 2024	Aug 2024
Obligation Work Limit Date	Jan 2022	Nov 2022	Sep 2023	Feb 2024	Feb 2025	Jul 2025

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: P452			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	Jun 2016	Sep 2018		
Request for Proposals	Jun 2015	Dec 2015		
Design Agent				

Classification of Cost Estimate:

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler

Cost Categories (†) indicates the presence of a P-8a	**FY 2016**		**FY 2018**		**FY 2019**		**FY 2020**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Plan Costs	1	102.121	1	-	2	-	2	-
Basic Construction/Conversion		540.086		489.027		964.030		966.403
Change Orders		8.118		4.890		9.500		9.643
Electronics (†)		27.899		26.650		54.366		55.454
Hull, Mechanical, and Electrical (HM&E) (†)		11.415		14.200		24.276		24.761
Total Ship Estimate		**689.639**		**534.767**		**1,052.172**		**1,056.261**
Less Advance Procurement FY 2017		-		73.079		-		-
Less Advance Procurement FY 2018		-		-		75.068		-
Less Advance Procurement FY 2019		-		-		-		75.046
Less Cost to Complete FY 2019		15.449		-		-		-
Less Cost to Complete FY 2020		-		3.700		-		-
Net P-1 Funding		**674.190**		**457.988**		**977.104**		**981.215**

Remarks:
FY 2020 Cost to Complete funds FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
T-AO 205	GD NASSCO	2016	Jun 2016	Sep 2018	Nov 2020
T-AO 206	GD NASSCO	2018	Mar 2018	Jul 2019	Sep 2021
T-AO 207	GD NASSCO	2019	Dec 2018	Jun 2020	Jul 2022
T-AO 208	GD NASSCO	2019	Dec 2018	Nov 2020	Dec 2022
T-AO 209	GD NASSCO	2020	Jan 2020	Nov 2021	Dec 2023
T-AO 210	GD NASSCO	2020	Jan 2020	Apr 2022	May 2024
T-AO 211 (1)	TBD	2021	Jan 2021	Nov 2022	Dec 2024
T-AO 212 (2)	TBD	2022	Jan 2022	Apr 2023	May 2025
T-AO 213	TBD	2023	Jan 2023	Apr 2024	Aug 2026
T-AO 214	TBD	2023	Jan 2023	Jan 2025	Apr 2027
T-AO 215	TBD	2024	Jan 2024	May 2025	Jul 2027

Footnotes:

(1) RFP released to Sole Source to GD NASSCO.

(2) RFP released to Sole Source to GD NASSCO.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	P-1 Line Item Number / Title: 5025 / TAO Fleet Oiler

Electronics	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
P-35 Items						
Radio Communication System (RCS) TURNKEY	1	6.463	2	13.184	2	13.448
P-35 Items Subtotal		**6.463**		**13.184**		**13.448**
Major Items						
Consolidated Afloat Networks and Enterprise Services (CANES)	1	2.828	2	5.770	2	5.886
Digital Modular Radio (DMR)	1	4.742	2	9.674	2	9.868
Commercial Broadband Satellite Program (CBSP)	1	1.915	2	3.906	2	3.984
AN/SLQ-25 NIXIE	1	1.921	2	3.918	2	3.996
AN/USQ-155 Tactical Variant Switch (TVS)	1	1.326	2	2.706	2	2.760
Major Items Subtotal		**12.732**		**25.974**		**26.494**
Other Cost Elements						
Minor Systems		7.455		15.208		15.512
Other Cost Elements Subtotal		**7.455**		**15.208**		**15.512**
Total Electronics		**26.650**		**54.366**		**55.454**

Remarks:
FY 2020 Cost to Complete funds FY18 Follow-on Hull (T-AO 206) Government Furnished Equipment (GFE) in Electronics.

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Items						
Engineering Services	1	11.037	2	19.388	2	19.776
Logistics Support Services		1.535		1.566		1.597
SOLAS Variant RIB (Qty 2 per ship)		0.792		1.616		1.648
Material Handling Equipment		0.621		1.268		1.294
Shipboard Automated Maintenance Module (SAMM)		0.215		0.438		0.446
Major Items Subtotal		**14.200**		**24.276**		**24.761**
Total Hull, Mechanical, and Electrical (HM&E)		**14.200**		**24.276**		**24.761**

Exhibit P-35, Major Ship Component Fact Sheet: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler
Equipment Item: Radio Communication System (RCS) TURNKEY	**PARM Code:** N/A

P-35 Category	FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Major Hardware	1	1.208	2	2.464	2	2.514
Ancillary Equipment		0.105		0.214		0.218
Technical Engineering Services		1.009		2.058		2.100
Ship Installation		3.741		7.632		7.784
Program Management		0.400		0.816		0.832
Total	**1**	**6.463**	**2**	**13.184**	**2**	**13.448**

Description:

The Radio Communication System (RCS) consists of the subsystems that provide data and voice communications across the RF spectrum. The RCS will be comprised of subsystems provided from various sources, including SPAWAR Program of Record systems, commercial systems, and associated ancillary equipment that can be obtained through the stock system and bought commercially. These subsystems will be integrated into one system and will include the automated and manual patching equipment required to configure these subsystems. The subsystems included in the RCS include the High Frequency 400 Watt System, Digital Modular Radio (DMR) VHF/UHF Line of Sight and UHF SATCOM voice, Naval Modular Automated Communications System (NAVMACS) Naval Messaging System, Battle Force Tactical Network (BFTN), Tactical Variant Switch (TVS), Tactical Voice Terminal (TVT), Automated Digital Networks System (ADNS), Commercial Broadband Satellite Program (CBSP), Fleet Broadcast, Navy Order wire (NOW) Terminals, OE-570A/WSC UHF SATCOM Antenna, Portable Communications Equipment (PCE) and Cryptologic equipment. The subsystems are integrated by SPAWAR Systems Center Atlantic at the Charleston, SC Test and Integration Facility with the proper interfaces to operate as an overall system. The RCS subsystems and interfaces will be tested prior to shipment for installation on board the T-AO ships.

Contract Data:

Program Year	Hull	Prime Contractor	Contract Method/Type	Award Date	New/Option	Quantity (Each)	Unit Cost ($ M)
FY 2018	T-AO 206	Scientific Research Corporation	C/CPFF	Jan 2018	New	1	1.208
FY 2019	T-AO 207	TBD	TBD	TBD		2	1.232
FY 2020	T-AO 209	TBD	TBD	TBD		2	1.257

Delivery Date:

Program Year	Hull	Earliest Ship Delivery Date	Months Required Before Delivery	Production Leadtime	Required Award Date
FY 2018	T-AO 206	Sep 2021	7	14	Dec 2019
FY 2019	T-AO 207	Jul 2022	7	14	Oct 2020
FY 2020	T-AO 209	Dec 2023	7	14	Mar 2022

Competition/Second Source Initiatives:

N/A

Remarks:

FY 2019 includes T-AO 207 and T-AO 208
FY 2020 includes T-AO 209 and T-AO 210

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Exhibit P-10, Advance Procurement Requirements Analysis (*page 1 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler

First System (2020) Award Date:	First System (2020) Completion Date:	Interval Between Systems:
January 2018	January 2021	12 Months

Cost Elements	Production Leadtime (Months)	When Required* (Months)	FY 2018 ($ M)	FY 2019 ($ M)	FY 2020 ($ M)	FY 2021 ($ M)	FY 2022 ($ M)	FY 2023 ($ M)	FY 2024 ($ M)
Basic Construction/Conversion									
Propulsion, Auxiliary, Machinery, and Components (9)	12-24	Various	73.000	73.000	73.000	73.000	74.000	75.500	77.000
Total: Basic Construction/Conversion			*73.000*	*73.000*	*73.000*	*73.000*	*74.000*	*75.500*	*77.000*
Hull, Mechanical, and Electrical (HM&E)									
Class Engineering Efforts	-	-	-	-	0.000	-	-	-	-
Total: Hull, Mechanical, and Electrical (HM&E)			-	-	-	-	-	-	-
Electronics									
Digital Modular Radio (DMR) (10)	-	-	2.068	2.046	0.000	-	-	-	-
AN/SLQ-25 NIXIE	-	-	-	-	0.000	-	-	-	-
Total: Electronics			*2.068*	*2.046*	-	-	-	-	-
Total Advance Procurement/Obligation Authority			**75.068**	**75.046**	**73.000**	**73.000**	**74.000**	**75.500**	**77.000**

*Note: "When Required" is the number of months required before ship delivery.

Exhibit P-10, Advance Procurement Requirements Analysis (*page 2 - Budget Funding Justification*): PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5025 / TAO Fleet Oiler

Cost Elements	FY 2020 Production Leadtime (Months)	When Required* (Months)	Unit Cost ($ M)	Contract Forecast Date	2020 Qty (Each)	For FY	Total Cost Request ($ M)
Basic Construction/Conversion							
Propulsion, Auxiliary, Machinery, and Components (9)	12-24	Various	73.000	Jan 2020	1	2021	73.000
Total: Basic Construction/Conversion							*73.000*
Hull, Mechanical, and Electrical (HM&E)							
Total: Hull, Mechanical, and Electrical (HM&E)							-
Electronics							
Digital Modular Radio (DMR) (10)	-	-	-		-		0.000
AN/SLQ-25 NIXIE	-	-	-		-		0.000
Total: Electronics							-
Total Advance Procurement/Obligation Authority							**73.000**

*Note: "When Required" is the number of months required before ship delivery.

Footnotes:

(9) Funding to procure Contractor furnished Long Lead Time Materials (LLTM) and engineering related activities.

(10) Funding to procure Government furnished Long Lead Time Materials (LLTM) and engineering related activities.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5035 / Towing, Salvage, and Rescue Ship (ATS)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	1	1	1	2	-	2	1	1	1	-	-	8
Gross/Weapon System Cost *($ in Millions)*	75.000	76.204	80.517	150.282	0.000	150.282	77.893	79.237	80.469	0.000	-	619.602
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	75.000	76.204	80.517	150.282	0.000	150.282	77.893	79.237	80.469	0.000	-	619.602
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**75.000**	**76.204**	**80.517**	**150.282**	**0.000**	**150.282**	**77.893**	**79.237**	**80.469**	**0.000**	**-**	**619.602**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	-	-	4.898	7.370	-	7.370	9.315	-	-	-	49.296	70.879
Total *($ in Millions)*	**75.000**	**76.204**	**85.415**	**157.652**	**-**	**157.652**	**87.208**	**79.237**	**80.469**	**-**	**49.296**	**690.481**
Gross/Weapon System Unit Cost *($ in Millions)*	75.000	76.204	80.517	75.141	-	75.141	77.893	79.237	80.469	-	-	77.450

Description:

The Navy requires ocean-going towing, salvage, and rescue capabilities to support Fleet operations. The Navy's current capabilities are provided by four T-ATF 166 class Fleet Tugs and four T-ARS 50 class Salvage ships which reach the end of their expected service lives starting in 2020 and 2025, respectively. The T-ATS program will recapitalize the current Fleet Tugs and Salvage Ships with a common hull Towing, Salvage and Rescue Ship (T-ATS) that is capable of performing the missions of the retiring T-ATF and T-ARS classes.

Characteristics: -

Length Overall	263 ft
Beam	59 ft
Displacement	5,110 tons
Draft	18 ft

Production Status:	T-ATS 1601	T-ATS 1801	T-ATS 1901	T-ATS 2001	T-ATS 2002
Contract Award Date	Mar 2018	Mar 2019	Mar 2019	Feb 2020	Feb 2020
Months to Completion					
a) Award to Delivery	36 months	28 months	32 months	26 months	30 months
b) Construction Start to Delivery	24 months	21 months	21 months	20 months	20 months
Delivery Date	Mar 2021	Jul 2021	Nov 2021	Apr 2022	Aug 2022
Completion Of Fitting Out	Apr 2021	Aug 2021	Dec 2021	May 2022	Sep 2022
Obligation Work Limit Date	Mar 2022	Jul 2022	Nov 2022	Apr 2023	Aug 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Dec 2015	Mar 2016		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Contract Design	N/A	N/A		
Detail Design	Mar 2018	Sep 2019		
Request for Proposals	Mar 2017	May 2017		
Design Agent	Wartsila			

Classification of Cost Estimate:

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5035 / Towing, Salvage, and Rescue Ship (ATS)

Cost Categories	FY 2016		FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Basic Construction/Conversion	1	63.742	1	62.842	1	66.685	2	130.097
Change Orders		3.200		2.145		2.008		2.602
Electronics		5.033		5.779		5.862		11.300
Hull, Mechanical, and Electrical (HM&E)		3.025		5.438		5.962		6.283
Total Ship Estimate		**75.000**		**76.204**		**80.517**		**150.282**
Net P-1 Funding		**75.000**		**76.204**		**80.517**		**150.282**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5035 / Towing, Salvage, and Rescue Ship (ATS)			
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
T-ATS 1601	Gulf Island Shipyards	2016	Mar 2018	Mar 2019	Mar 2021
T-ATS 1801	Gulf Island Shipyards	2018	Mar 2019	Oct 2019	Jul 2021
T-ATS 1901	Gulf Island Shipyards	2019	Mar 2019	Feb 2020	Nov 2021
T-ATS 2001	Gulf Island Shipyards	2020	Feb 2020	Aug 2020	Apr 2022
T-ATS 2002	Gulf Island Shipyards	2020	Feb 2020	Dec 2020	Aug 2022
T-ATS 2101	Gulf Island Shipyards	2021	Feb 2021	Aug 2021	Apr 2023
T-ATS 2201	Gulf Island Shipyards	2022	Feb 2022	Aug 2022	Apr 2024
T-ATS 2301	Gulf Island Shipyards	2023	Feb 2023	Aug 2023	Apr 2025

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5087 / Oceanographic Ships

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	3	1	-	-	-	-	-	-	-	-	-	4
Gross/Weapon System Cost *($ in Millions)*	291.326	180.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	471.326
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	291.326	180.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	471.326
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**291.326**	**180.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**471.326**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	14.862	-	-	-	-	-	-	-	-	-	8.575	23.437
Total *($ in Millions)*	**306.188**	**180.000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8.575**	**494.763**
Gross/Weapon System Unit Cost *($ in Millions)*	97.109	180.000	-	-	-	-	-	-	-	-	-	117.832

Description:

The FY 2018 Omnibus Appropriations Act included a Congressional add for Detail Design and Construction (DD&C) efforts for one T-AGS 60 vessel. T-AGS 67 is a repeat platform of T-AGS 66 and includes the Moon Pool Launch and Recovery System (MLARS). The TAGS 67 will be capable of deep ocean and coastal surveys, oceanographic sampling and data collections of surface, midwater and ocean floor parameters, shipboard oceanographic data processing and sample analysis, and operation of remotely operated vehicles (AUVs) and hydrographic survey launches (HSLs).

Characteristics:

	T-AGS
Length Overall	353 ft
Beam	58 ft
Displacement	4,888 Long Tons
Draft	19 ft

Production Status:	T-AGS 67
Contract Award Date	Mar 2019
Months to Completion	
a) Award to Delivery	40 months
b) Construction Start to Delivery	38 months
Delivery Date	Jul 2022
Completion Of Fitting Out	Oct 2022
Obligation Work Limit Date	Oct 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	Aug 1993	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5087 / Oceanographic Ships	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Contract Design	Sep 2018	N/A		
Detail Design	Mar 2019	N/A		
Request for Proposals	Aug 2018	N/A		
Design Agent	N/A			

Classification of Cost Estimate: N/A

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5087 / Oceanographic Ships

Cost Categories	FY 2018	
	Qty *(Each)*	Total Cost *($ M)*
Plan Costs	1	
Basic Construction/Conversion		140.000
Change Orders		1.500
Electronics		29.500
Hull, Mechanical, and Electrical (HM&E)		9.000
Other Cost		
Total Ship Estimate		**180.000**
Net P-1 Funding		**180.000**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5087 / Oceanographic Ships		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
T-AGS 67	VT HALTER	2018	Mar 2019	May 2019	Jul 2022

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5100 / LCU 1700

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	1	-	2	4	-	4	4	4	4	4	9	32
Gross/Weapon System Cost *($ in Millions)*	34.000	0.000	41.520	85.670	0.000	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	34.000	0.000	41.520	85.670	0.000	85.670	89.514	88.708	89.524	91.313	196.412	716.661
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**34.000**	**0.000**	**41.520**	**85.670**	**0.000**	**85.670**	**89.514**	**88.708**	**89.524**	**91.313**	**196.412**	**716.661**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Total *($ in Millions)*	**34.000**	**-**	**41.520**	**85.670**	**-**	**85.670**	**89.514**	**88.708**	**89.524**	**91.313**	**196.412**	**716.661**
Gross/Weapon System Unit Cost *($ in Millions)*	34.000	-	20.760	21.418	-	21.418	22.379	22.177	22.381	22.828	21.824	22.396

Description:

The Landing Craft, Utility (LCU) 1700 program provides heavy lift capability to transport personnel, weapons, equipment, and cargo from the ship to shore and shore to shore across the range of military operations (ROMO). LCU 1700 will be able to conduct 24 hours/day operations for up to 10 days for continuous landing of troops, equipment, and supplies; provide support for missions requiring persistence such as riverine sustainment, surveillance or port clearing; and execute missions to reinforce, reposition, and resupply forces over a wide operating area.

LCU 1700 provides the functional replacement for the LCU 1610 class of landing craft, all of which have significantly exceeded their 25 year service life, the average age is approaching 50 years old.

LCU 1700 requirement is for 32 craft.

Note:
Notional Characteristics based on Government Preliminary Design.
Production Status dates provided are based on awarded contract delivery dates.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5100 / LCU 1700

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:	LCU
Length Overall	139 ft
Beam	31 ft
Displacement	428 Tons
Draft	7.3 ft

Production Status:	LCU 1700	LCU 1701	LCU 1702	LCU 1703	LCU 1704	LCU 1705	LCU 1706
Contract Award Date	Mar 2018	Feb 2019	Feb 2019	Mar 2020	Mar 2020	Mar 2020	Mar 2020
Months to Completion							
a) Award to Delivery	32 months	24 months	27 months	25 months	27 months	29 months	31 months
b) Construction Start to Delivery	18 months	18 months	18 months	16 months	15 months	14 months	13 months
Delivery Date	Nov 2020	Feb 2021	May 2021	Apr 2022	Jun 2022	Aug 2022	Oct 2022
Completion Of Fitting Out	Dec 2020	Mar 2021	Jun 2022	May 2022	Jul 2022	Sep 2022	Nov 2022
Obligation Work Limit Date	Nov 2021	Feb 2022	May 2022	Apr 2023	Jun 2023	Aug 2023	Oct 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Mar 2014	May 2015		
Contract Design	Jun 2015	Jun 2016		
Detail Design	Apr 2018	Apr 2019		
Request for Proposals	Feb 2017	May 2017		
Design Agent	Swiftships LLC			

Classification of Cost Estimate:

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5100 / LCU 1700

Cost Categories	FY 2016		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Basic Construction/Conversion		19.050		33.163		67.673
Change Orders		1.600		1.500		3.170
Electronics		3.890		3.768		6.761
Hull, Mechanical, and Electrical (HM&E)		2.360		1.589		3.060
Other Cost		2.100		1.500		5.006
Plan Costs	1	5.000	2	-	4	-
Total Ship Estimate		**34.000**		**41.520**		**85.670**
Net P-1 Funding		**34.000**		**41.520**		**85.670**

Remarks:
FY 2016 electronics funding includes non-recurring engineering costs.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5100 / LCU 1700		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LCU 1700	Swiftships LLC	2016	Mar 2018	May 2019	Nov 2020
LCU 1701	Swiftships LLC	2019	Feb 2019	Aug 2019	Feb 2021
LCU 1702	Swiftships LLC	2019	Feb 2019	Nov 2019	May 2021
LCU 1703	Swiftships LLC	2020	Mar 2020	Dec 2020	Apr 2022
LCU 1704	Swiftships LLC	2020	Mar 2020	Mar 2021	Jun 2022
LCU 1705	Swiftships LLC	2020	Mar 2020	Jun 2021	Aug 2022
LCU 1706	Swiftships LLC	2020	Mar 2020	Sep 2021	Oct 2022
LCU 1707	Swiftships LLC	2021	Mar 2021	Dec 2021	Mar 2023
LCU 1708	Swiftships LLC	2021	Mar 2021	Mar 2022	May 2023
LCU 1709	Swiftships LLC	2021	Mar 2021	Jun 2022	Jul 2023
LCU 1710	Swiftships LLC	2021	Mar 2021	Sep 2022	Sep 2023
LCU 1711	Swiftships LLC	2022	Mar 2022	Feb 2023	Feb 2024
LCU 1712	Swiftships LLC	2022	Mar 2022	Apr 2023	Apr 2024
LCU 1713	Swiftships LLC	2022	Mar 2022	Jun 2023	Jun 2024
LCU 1714	Swiftships LLC	2022	Mar 2022	Aug 2023	Aug 2024
LCU 1715	Swiftlships LLC	2023	Mar 2023	Jan 2024	Jan 2025
LCU 1716	Swiftships LLC	2023	Mar 2023	Mar 2024	Mar 2025
LCU 1717	Swiftships LLC	2023	Mar 2023	May 2024	May 2025
LCU 1718	Swiftships LLC	2023	Mar 2023	Jul 2024	Jul 2025
LCU 1719	Swiftships LLC	2024	Mar 2024	Jan 2025	Jan 2026
LCU 1720	Swiftships LLC	2024	Mar 2024	Mar 2025	Mar 2026
LCU 1721	Swiftships LLC	2024	Mar 2024	May 2025	May 2026
LCU 1722	Swiftships LLC	2024	Mar 2024	Jul 2025	Jul 2026

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5110 / Outfitting

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Full Funding TOA - Outfitting *($ in Millions)*	624.217	104.464	181.139	267.204	246.622	158.484	181.015	187.475	931.467	2,882.087
Full Funding TOA - Post Delivery *($ in Millions)*	743.113	380.020	363.708	482.174	353.213	384.032	377.808	389.751	1,245.481	4,719.300
Full Funding TOA - First Destination *($ in Millions)*	33.671	4.589	5.191	5.301	5.396	5.499	5.612	5.724	5.581	76.564
Total Obligation Authority *($ in Millions)*	**1,401.001**	**489.073**	**550.038**	**754.679**	**605.231**	**548.015**	**564.435**	**582.950**	**2,182.529**	**7,677.951**

Description:

Outfitting funds are used to acquire on board repair parts, other secondary items, equipage, recreation items, precommissioning crew support and general use consumables furnished to the shipbuilder or the fitting-out activity to fill the ship's initial allowances as defined by the baseline coordinated shipboard allowance list (COSAL). The program also budgets for contractor-furnished spares, a lead-time away from delivery. The program ensures operational readiness of ships undergoing new construction, conversion, service life extension program (SLEP), and nuclear refueling. It ensures these ships receive their full allowances of spare parts and equipment which are vitally required to support the shipboard maintenance process; ensures ships are equipped with operating space items (tools, test equipment, damage control), personnel safety and survivability commodities for successful completion of builder sea trials; supports shipboard maintenance and thereby achieving the OPNAV-directed supply readiness goals for material on board ship at delivery. SCN funding for the initial fill of allowance list items are limited to those items on the COSAL and authorized requirements through the Obligation Work Limiting Date (OWLD). While most outfitting funds are executed prior to ships' completion of fitting out dates, some outfitting funding may be required in the fiscal year following the scheduled Delivery Date.

Post Delivery funding covers the repair of government-responsible items which were believed to have been complete to standard and/or operable at delivery, as well as funding to conduct tests and trials after delivery.
It is essential to deliver to the Fleet complete ships, free from both contractor and government responsible deficiencies, capable of supporting the Navy's mission. The Post Shakedown Availability (PSA) is a shipyard availability assigned to commence after delivery and to be completed prior to the expiration of the SCN OWLD. It is during this time that acceptance and final contract trials deficiencies will be corrected. The purpose of the PSA is to correct new construction deficiencies found during the shakedown period; to correct contractor and government responsible deficiencies previously authorized; and accomplishment of other improvements or class items as authorized. Funding is used for corrections authorized by the ship's Program Manager as a result of builders' trials (pre-delivery), acceptance or underway trials, final contract trials, trial board items, and correction of production-related defects or deficiencies which develop during the post delivery period. Although the majority of post delivery funding occurs after ships' delivery dates, some funding is required prior to the delivery date in preparation for post delivery events.

First Destination Transportation (FDT). FDT delivers material from a procurement source to the first point of use or storage which may be in the Continental United States or overseas. The procurement source may be a supplier outside of the Department of Defense (DoD) supply system or a DoD activity which fabricates new material. FDT also includes transportation from point of origin to point of use or storage when Navy-owned material or equipment is provided to a contractor incident to a Research and Development project or a system/equipment acquisition or modification.

Exhibit P-29, Outfitting: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
CVN	78	2008	Sep 2008	Aug 2005	May 2017	Jul 2017	Jul 2018	Jul 2019	Jan 2020	151.600	-	-	-	-	151.600
CVN	79 (1)	2013	Jun 2015	Feb 2011	Sep 2024	Nov 2024	Mar 2023	Sep 2024	Oct 2025	-	0.231	-	38.539	131.915	170.685
CVN	80	2018	Jan 2019	Jan 2019	Mar 2028	May 2028	Oct 2028	Mar 2029	Apr 2029	-	-	-	-	175.279	175.279
CVN	81	2020	Jan 2019	Jan 2019	Feb 2032	Apr 2032	Sep 2032	Feb 2033	Mar 2033	-	-	-	-	182.396	182.396
									CVN Total	**151.600**	**0.231**	**-**	**38.539**	**489.590**	**679.960**
VIRGINIA	787	2011	Dec 2008	Sep 2011	May 2017	May 2017	Oct 2017	Aug 2018	Sep 2018	17.912	0.430	-	-	-	18.342
VIRGINIA	788	2012	Dec 2008	Mar 2012	Sep 2017	Sep 2017	Apr 2018	Oct 2018	Nov 2018	16.706	0.455	-	-	-	17.161
VIRGINIA	789	2012	Dec 2008	Sep 2012	Jun 2018	Jun 2018	Oct 2018	May 2019	May 2019	16.623	0.725	-	-	-	17.348
VIRGINIA	790	2013	Dec 2008	Mar 2013	Sep 2018	Sep 2018	Feb 2019	Jul 2019	Aug 2019	17.031	2.001	-	-	-	19.032
VIRGINIA	791	2013	Dec 2008	Sep 2013	Jun 2019	Jun 2019	Oct 2019	Jan 2020	May 2020	16.823	1.361	0.450	-	-	18.634
VIRGINIA	792	2014	Apr 2014	May 2014	Oct 2019	Oct 2019	Jan 2020	Jun 2020	Sep 2020	14.487	2.507	0.718	-	-	17.712
VIRGINIA	793	2014	Apr 2014	Sep 2014	May 2020	May 2020	Jul 2020	Oct 2020	Apr 2021	13.386	3.687	0.983	8.163	-	26.219
VIRGINIA	794	2015	Apr 2014	Apr 2015	Sep 2020	Sep 2020	Jan 2021	Apr 2021	Aug 2021	6.366	6.771	4.112	11.460	-	28.709
VIRGINIA	795	2015	Apr 2014	Sep 2015	Apr 2021	Apr 2021	Jul 2021	Oct 2021	Mar 2022	-	4.640	9.838	4.366	6.850	25.694
VIRGINIA	796	2016	Apr 2014	Mar 2016	Aug 2021	Aug 2021	Nov 2021	Feb 2022	Jul 2022	-	-	10.241	13.486	6.522	30.249
VIRGINIA	797	2016	Apr 2014	Sep 2016	Jan 2022	Jan 2022	May 2022	Aug 2022	Dec 2022	-	-	0.051	11.062	11.310	22.423
VIRGINIA	798	2017	Apr 2014	Mar 2017	Jun 2022	Jun 2022	Oct 2022	Jan 2023	May 2023	-	-	-	9.740	12.632	22.372
VIRGINIA	799	2017	Apr 2014	Sep 2017	Dec 2022	Dec 2022	Apr 2023	Jul 2023	Nov 2023	-	-	-	-	22.794	22.794
VIRGINIA	800	2018	Apr 2014	Mar 2018	Apr 2023	Apr 2023	Jul 2023	Oct 2023	Mar 2024	-	-	-	-	22.794	22.794
VIRGINIA	801	2018	Apr 2014	Sep 2018	Sep 2023	Sep 2023	Jan 2024	Apr 2024	Aug 2024	-	-	-	-	23.185	23.185
VIRGINIA	802	2019	Apr 2019	Mar 2019	Jan 2025	Jan 2025	Apr 2025	Aug 2025	Dec 2025	-	-	-	-	25.012	25.012
VIRGINIA	803	2019	Apr 2019	Sep 2019	Nov 2025	Nov 2025	Jan 2026	Apr 2026	Oct 2026	-	-	-	-	25.682	25.682
VIRGINIA	804	2020	Apr 2019	Mar 2020	Jan 2026	Jan 2026	Apr 2026	Jul 2026	Dec 2026	-	-	-	-	25.682	25.682
VIRGINIA	805	2020	Apr 2019	Sep 2020	Sep 2026	Sep 2026	Jan 2027	Apr 2027	Aug 2027	-	-	-	-	26.195	26.195
VIRGINIA	812	2020	Apr 2019	Mar 2023	Sep 2029	Sep 2029	Jan 2030	Apr 2030	Aug 2030	-	-	-	-	26.719	26.719
VIRGINIA	806	2021	Apr 2019	Mar 2021	Jan 2027	Jan 2027	Apr 2027	Jul 2027	Dec 2027	-	-	-	-	26.195	26.195
VIRGINIA	807	2021	Apr 2019	Sep 2021	Nov 2027	Nov 2027	Feb 2028	May 2028	Oct 2028	-	-	-	-	26.719	26.719
VIRGINIA	808	2022	Apr 2019	Mar 2022	Mar 2028	Mar 2028	Jun 2028	Sep 2028	Feb 2029	-	-	-	-	26.719	26.719
VIRGINIA	809	2022	Apr 2019	Sep 2022	Sep 2028	Sep 2028	Jan 2029	Apr 2029	Aug 2029	-	-	-	-	26.719	26.719
									VIRGINIA Total	**119.334**	**22.577**	**26.393**	**58.277**	**341.729**	**568.310**
CVN-RCOH	73	2016	Aug 2017	Aug 2017	Aug 2021	Oct 2021	Aug 2021	Aug 2022	Sep 2022	-	7.701	20.048	31.597	9.368	68.714
CVN-RCOH	74	2020	Jan 2021	Jan 2021	Jan 2025	Mar 2025	Jan 2025	Jan 2026	Feb 2026	-	-	-	-	69.162	69.162
									CVN-RCOH Total	**-**	**7.701**	**20.048**	**31.597**	**78.530**	**137.876**
DDG 1000	1000	2007	Feb 2008	Feb 2009	Sep 2019	Jan 2020	Jul 2020	Dec 2020	Dec 2020	63.268	1.658	-	0.450	1.778	67.154
DDG 1000	1001	2007	Sep 2011	Mar 2010	Sep 2020	Oct 2020	Apr 2021	Jul 2021	Sep 2021	14.528	5.021	3.539	1.799	-	24.887
DDG 1000	1002	2009	Sep 2011	Apr 2012	Sep 2022	Oct 2022	Apr 2023	Jul 2023	Sep 2023	0.029	-	10.550	3.305	8.820	22.704
									DDG 1000 Total	**77.825**	**6.679**	**14.089**	**5.554**	**10.598**	**114.745**
DDG	114	2011	Sep 2011	Sep 2013	Nov 2017	Mar 2018	Oct 2018	Feb 2019	Feb 2019	18.006	2.321	-	-	-	20.327
DDG	116	2012	Feb 2012	Feb 2013	Jun 2018	Oct 2018	May 2019	Sep 2019	Sep 2019	15.664	1.904	3.336	-	-	20.904

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Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
DDG	117	2013	Jun 2013	Sep 2014	Feb 2019	Jun 2019	Jan 2020	May 2020	May 2020	14.553	5.901	2.030	1.675	-	24.159
DDG	118	2013	Jun 2013	Aug 2015	Apr 2020	Aug 2020	Apr 2021	Jul 2021	Jul 2021	-	8.896	7.403	2.786	2.025	21.110
DDG	120	2013	Mar 2014	Sep 2016	Jan 2021	May 2021	Jan 2022	Apr 2022	Apr 2022	-	-	-	20.613	3.328	23.941
DDG	119	2014	Jun 2013	Jul 2015	Oct 2019	Feb 2020	Aug 2020	Dec 2020	Jan 2021	6.820	3.562	5.554	1.987	0.636	18.559
DDG	121	2015	Jun 2013	Apr 2016	Jul 2020	Dec 2020	Jul 2021	Nov 2021	Nov 2021	-	-	14.936	6.543	2.343	23.822
DDG	122	2015	Jun 2013	Sep 2017	Oct 2021	Feb 2022	Oct 2022	Jan 2023	Jan 2023	-	-	-	-	10.490	10.490
DDG	123	2016	Jun 2013	Jan 2017	Jul 2021	Nov 2021	May 2022	Sep 2022	Oct 2022	-	-	-	9.780	7.400	17.180
DDG	124	2016	Jun 2013	Jul 2018	Jun 2022	Oct 2022	Apr 2023	Aug 2023	Sep 2023	-	-	-	-	24.778	24.778
DDG	127	2016	Sep 2017	Jul 2018	Nov 2022	Mar 2023	Sep 2023	Jan 2024	Feb 2024	-	-	-	-	22.173	22.173
DDG	125	2017	Jun 2013	May 2018	Apr 2023	Aug 2023	Feb 2024	Jun 2024	Jul 2024	-	-	-	-	25.237	25.237
DDG	126	2017	Jun 2013	Apr 2019	Jun 2024	Oct 2024	Apr 2025	Aug 2025	Sep 2025	-	-	-	-	25.787	25.787
DDG	128	2018	Sep 2018	Jun 2020	Oct 2024	Feb 2025	Aug 2025	Dec 2025	Jan 2026	-	-	-	-	24.064	24.064
DDG	129	2018	Sep 2018	May 2021	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	26.304	26.304
DDG	130	2019	Sep 2018	Jul 2020	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	26.303	26.303
DDG	131	2019	Sep 2018	Mar 2022	Apr 2026	Aug 2026	Feb 2027	Jun 2027	Jul 2027	-	-	-	-	26.736	26.736
DDG	132	2019	Dec 2018	Jun 2021	May 2026	Sep 2026	Mar 2027	Jul 2027	Aug 2027	-	-	-	-	25.962	25.962
DDG	133	2020	Sep 2018	Oct 2022	Nov 2026	Mar 2027	Sep 2027	Jan 2028	Feb 2028	-	-	-	-	26.842	26.842
DDG	134	2020	Sep 2018	Apr 2022	Nov 2026	Mar 2027	Sep 2027	Jan 2028	Feb 2028	-	-	-	-	26.736	26.736
DDG	135	2020	Jun 2020	Nov 2022	Mar 2027	Aug 2027	Feb 2028	Jun 2028	Jul 2028	-	-	-	-	26.969	26.969
									DDG Total	**55.043**	**22.584**	**33.259**	**43.384**	**334.113**	**488.383**
LCS	6	2010	Dec 2010	Aug 2011	Aug 2015	Nov 2015	Jun 2017	Aug 2018	Oct 2018	6.490	0.040	-	-	-	6.530
LCS	5	2010	Dec 2010	Aug 2011	Oct 2015	Nov 2015	Jan 2017	May 2018	Jun 2018	6.533	0.010	-	-	-	6.543
LCS	8	2011	Mar 2011	Jul 2012	Jun 2016	Sep 2016	May 2017	Jun 2018	Jun 2018	6.151	-	-	-	-	6.151
LCS	7	2011	Mar 2011	Apr 2012	Aug 2016	Oct 2016	May 2017	Apr 2018	Jun 2018	6.384	0.012	-	-	-	6.396
LCS	10	2012	Mar 2012	Mar 2013	Dec 2016	May 2017	Feb 2018	Oct 2018	Oct 2018	5.368	0.045	-	-	-	5.413
LCS	12	2012	Mar 2012	Sep 2013	Sep 2017	Nov 2017	Jul 2018	Jan 2019	Mar 2019	5.205	0.029	0.805	-	-	6.039
LCS	9	2012	Mar 2012	Jan 2013	Sep 2017	Dec 2017	Dec 2018	Jul 2019	Aug 2019	5.200	0.132	-	-	-	5.332
LCS	11	2012	Mar 2012	Aug 2013	Aug 2018	Jun 2019	Oct 2019	May 2020	May 2020	5.617	0.125	0.400	-	-	6.142
LCS	14	2013	Mar 2013	Feb 2014	Feb 2018	Aug 2018	Mar 2019	Oct 2019	Oct 2019	5.424	0.318	0.300	-	-	6.042
LCS	16	2013	Mar 2013	Sep 2014	Apr 2018	Feb 2019	Jun 2019	Nov 2019	Jan 2020	4.597	1.220	0.301	-	-	6.118
LCS	13	2013	Mar 2013	Feb 2014	Aug 2018	Apr 2019	Jul 2019	Feb 2020	Mar 2020	4.676	0.236	1.095	-	-	6.007
LCS	15	2013	Mar 2013	Dec 2014	Feb 2019	Feb 2020	Apr 2020	Dec 2020	Jan 2021	4.104	0.246	0.255	1.404	-	6.009
LCS	18	2014	Mar 2014	Mar 2015	Aug 2018	Jun 2019	Oct 2019	Mar 2020	May 2020	4.325	0.914	0.828	0.130	-	6.197
LCS	20	2014	Mar 2014	Feb 2016	Jul 2019	Feb 2020	Jul 2020	Oct 2020	Nov 2020	3.558	1.799	0.700	2.148	-	8.205
LCS	17	2014	Mar 2014	Aug 2015	Jul 2019	Apr 2020	Aug 2020	Feb 2021	Mar 2021	3.828	0.966	0.635	0.738	-	6.167
LCS	19	2014	Mar 2014	Aug 2016	Feb 2020	Oct 2020	Mar 2021	Aug 2021	Sep 2021	2.920	0.583	1.403	2.864	0.225	7.995
LCS	22	2015	Mar 2015	Dec 2016	Aug 2019	Jun 2020	Oct 2020	Mar 2021	May 2021	0.293	3.749	1.525	0.571	2.198	8.336
LCS	24	2015	Mar 2015	Jul 2017	Apr 2020	Jan 2021	Jun 2021	Nov 2021	Dec 2021	-	1.386	2.006	4.255	0.894	8.541
LCS	21	2015	Mar 2015	Feb 2017	Oct 2020	Aug 2021	Jan 2022	Jul 2022	Jul 2022	1.338	1.639	0.999	3.011	1.148	8.135

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LCS	26	2016	Mar 2016	Jan 2018	Nov 2020	Aug 2021	Jan 2022	Jun 2022	Jul 2022	-	-	1.780	4.006	3.050	8.836
LCS	23	2016	Nov 2015	Sep 2017	Jun 2021	Feb 2022	Jul 2022	Dec 2022	Jan 2023	1.097	2.558	0.830	1.152	2.716	8.353
LCS	25	2016	Mar 2016	Feb 2018	Feb 2022	Oct 2022	Mar 2023	Sep 2023	Sep 2023	-	-	0.514	-	8.048	8.562
LCS	28	2017	Jun 2017	Oct 2018	Jan 2022	Oct 2022	Mar 2023	Aug 2023	Sep 2023	-	-	-	2.607	6.688	9.295
LCS	27	2017	Oct 2017	Nov 2018	Oct 2022	Jun 2023	Nov 2023	Apr 2024	May 2024	-	-	-	-	8.988	8.988
LCS	30	2017	Oct 2017	May 2019	Oct 2022	Jul 2023	Dec 2023	May 2024	Jun 2024	-	-	-	-	9.840	9.840
LCS	29	2018	Sep 2018	Dec 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.210	9.210
LCS	32	2018	Sep 2018	Nov 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.893	9.893
LCS	34	2018	Sep 2018	Feb 2020	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	9.865	9.865
LCS	36	2019	Dec 2018	May 2020	Dec 2023	Sep 2024	Feb 2025	Aug 2025	Aug 2025	-	-	-	-	9.845	9.845
LCS	31	2019	Jan 2019	Jun 2020	Jan 2024	Oct 2024	Mar 2025	Sep 2025	Sep 2025	-	-	-	-	9.830	9.830
LCS	38	2019	Dec 2018	Nov 2020	Jun 2024	Mar 2025	Aug 2025	Feb 2026	Feb 2026	-	-	-	-	9.845	9.845
									LCS Total	**83.108**	**16.007**	**14.376**	**22.886**	**102.283**	**238.660**
LPD	27	2012	Jul 2012	Aug 2012	Sep 2017	Apr 2018	Nov 2018	Aug 2019	Aug 2019	24.430	1.424	-	-	-	25.854
LPD	28	2016	Dec 2016	Dec 2016	Sep 2021	Feb 2022	Aug 2022	Jan 2023	Jan 2023	-	-	-	18.458	8.124	26.582
LPD	29	2017	Feb 2018	Jul 2018	Jul 2023	Mar 2024	Sep 2024	Feb 2025	Feb 2025	-	-	-	-	28.577	28.577
									LPD Total	**24.430**	**1.424**	**-**	**18.458**	**36.701**	**81.013**
ESB	4	2014	Dec 2014	Oct 2015	Feb 2018	Jun 2018	Jan 2019	May 2019	May 2019	17.916	-	-	-	-	17.916
ESB	5	2016	Dec 2016	Jan 2017	Sep 2019	Dec 2019	Sep 2020	Nov 2020	Nov 2020	-	4.895	12.207	6.914	-	24.016
ESB	6	2018	Jun 2019	Dec 2019	Feb 2022	May 2022	Feb 2023	Apr 2023	Apr 2023	-	-	-	-	22.500	22.500
ESB	7	2019	Jun 2019	May 2021	Jul 2023	Oct 2023	Jul 2024	Sep 2024	Sep 2024	-	-	-	-	22.750	22.750
ESB	8	2023	Jun 2023	May 2024	Jul 2026	Oct 2026	Jul 2027	Sep 2027	Sep 2027	-	-	-	-	23.335	23.335
									ESB Total	**17.916**	**4.895**	**12.207**	**6.914**	**68.585**	**110.517**
LHA	7	2011	May 2012	Jul 2013	Jun 2019	Jun 2020	Nov 2020	Feb 2021	May 2021	28.358	9.071	8.330	-	1.177	46.936
LHA	8	2017	Jun 2017	Oct 2018	Jan 2024	Sep 2024	Mar 2025	Jun 2025	Aug 2025	-	-	-	-	28.646	28.646
									LHA Total	**28.358**	**9.071**	**8.330**	**-**	**29.823**	**75.582**
EPF	9	2012	Feb 2012	Nov 2015	Dec 2017	Mar 2018	Jan 2019	Apr 2019	Apr 2019	3.367	-	-	-	-	3.367
EPF	10	2013	Dec 2012	Jun 2016	Nov 2018	Feb 2019	Aug 2019	Oct 2019	Jan 2020	4.448	-	-	-	-	4.448
EPF	11	2015	Sep 2016	Jan 2017	Apr 2019	Jul 2019	Jan 2020	Mar 2020	Jun 2020	-	3.495	0.366	-	-	3.861
EPF	12	2016	Sep 2016	Sep 2017	Feb 2020	May 2020	Nov 2020	Jan 2021	Apr 2021	-	0.109	4.439	-	-	4.548
EPF	13	2018	Mar 2019	Nov 2019	Nov 2021	Feb 2022	Aug 2022	Oct 2022	Jan 2023	-	-	-	-	4.500	4.500
									EPF Total	**7.815**	**3.604**	**4.805**	**-**	**4.500**	**20.724**
T-AO	205	2016	Jun 2016	Sep 2018	Nov 2020	Feb 2021	Jun 2021	Sep 2021	Jan 2022	-	-	17.712	3.784	-	21.496
T-AO	206	2018	Mar 2018	Jul 2019	Sep 2021	Dec 2021	Apr 2022	Jul 2022	Nov 2022	-	-	-	11.039	7.385	18.424
T-AO	207	2019	Dec 2018	Jun 2020	Jul 2022	Oct 2022	Feb 2023	May 2023	Sep 2023	-	-	-	2.712	15.931	18.643
T-AO	208	2019	Dec 2018	Nov 2020	Dec 2022	Mar 2023	Jul 2023	Oct 2023	Feb 2024	-	-	-	-	18.885	18.885
T-AO	209	2020	Jan 2020	Nov 2021	Dec 2023	Mar 2024	Jul 2024	Oct 2024	Feb 2025	-	-	-	-	18.710	18.710
T-AO	210	2020	Jan 2020	Apr 2022	May 2024	Aug 2024	Dec 2024	Mar 2025	Jul 2025	-	-	-	-	19.397	19.397
T-AO	211	2021	Jan 2021	Nov 2022	Dec 2024	Mar 2025	Jul 2025	Oct 2025	Feb 2026	-	-	-	-	19.648	19.648

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T-AO	212	2022	Jan 2022	Apr 2023	May 2025	Aug 2025	Dec 2025	Mar 2026	Jul 2026	-	-	-	-	19.927	19.927
									T-AO Total	**-**	**-**	**17.712**	**17.535**	**119.883**	**155.130**
T-ATS(X)	1601	2016	Mar 2018	Mar 2019	Mar 2021	Apr 2021	Aug 2021	Aug 2021	Mar 2022	-	-	2.702	1.508	-	4.210
T-ATS(X)	1801	2018	Mar 2019	Oct 2019	Jul 2021	Aug 2021	Mar 2022	Mar 2022	Jul 2022	-	-	2.196	1.886	-	4.082
T-ATS(X)	1901	2019	Mar 2019	Feb 2020	Nov 2021	Dec 2021	Jul 2022	Jul 2022	Nov 2022	-	-	-	1.490	2.528	4.018
T-ATS(X)	2001	2020	Feb 2020	Aug 2020	Apr 2022	May 2022	Dec 2022	Dec 2022	Apr 2023	-	-	-	-	4.320	4.320
T-ATS(X)	2002	2020	Feb 2020	Dec 2020	Aug 2022	Sep 2022	Apr 2023	Apr 2023	Aug 2023	-	-	-	-	4.320	4.320
									T-ATS(X) Total	**-**	**-**	**4.898**	**4.884**	**11.168**	**20.950**
MTS	701	2015	Feb 2015	Feb 2015	Sep 2019	Sep 2019			Aug 2020	15.683	-	-	-	-	15.683
MTS	711	2017	May 2017	May 2017	Mar 2021	Mar 2021			Feb 2022	-	3.000	11.740	4.800	-	19.540
									MTS Total	**15.683**	**3.000**	**11.740**	**4.800**	**-**	**35.223**
LCAC	102	2015	Mar 2015	Sep 2016	Nov 2019	Mar 2020	Aug 2020	Nov 2020	Jan 2021	-	0.550	0.360	-	-	0.910
LCAC	101	2015	Dec 2012	Mar 2015	Dec 2019	Mar 2020	Jun 2020	Aug 2020	Jan 2021	0.300	0.601	-	-	-	0.901
LCAC	103	2015	Mar 2015	Nov 2016	Dec 2019	Mar 2020	Sep 2020	Dec 2020	Jan 2021	-	-	1.037	-	-	1.037
LCAC	104	2016	Mar 2016	Feb 2017	Mar 2020	Aug 2020	Jan 2021	Apr 2021	Jul 2021	-	-	1.037	-	-	1.037
LCAC	105	2016	Mar 2016	May 2017	May 2020	Aug 2020	Feb 2021	May 2021	Jul 2021	-	-	0.853	0.184	-	1.037
LCAC	106	2016	Mar 2016	Oct 2017	Jun 2020	Aug 2020	Mar 2021	Jun 2021	Jul 2021	-	-	-	1.037	-	1.037
LCAC	107	2016	Mar 2016	Apr 2018	Oct 2020	Oct 2021	Mar 2022	Jun 2022	Sep 2022	-	-	-	1.037	-	1.037
LCAC	108	2016	Mar 2016	Jul 2018	Dec 2020	Oct 2021	Apr 2022	Jul 2022	Sep 2022	-	-	-	1.037	-	1.037
LCAC	109	2017	Mar 2019	Dec 2018	Aug 2021	Oct 2021	May 2022	Aug 2022	Sep 2022	-	-	-	0.534	0.524	1.058
LCAC	110	2017	Mar 2019	Mar 2019	Oct 2021	Apr 2022	Sep 2022	Dec 2022	Mar 2023	-	-	-	-	1.058	1.058
LCAC	111	2018	Mar 2019	Jul 2019	Dec 2021	Apr 2022	Oct 2022	Jan 2023	Mar 2023	-	-	-	-	1.058	1.058
LCAC	112	2018	Mar 2019	Sep 2019	Jan 2022	Apr 2022	Nov 2022	Feb 2023	Mar 2023	-	-	-	-	1.058	1.058
LCAC	113	2018	Mar 2019	Nov 2019	Mar 2022	Aug 2022	Jan 2023	Apr 2023	Jul 2023	-	-	-	-	1.058	1.058
LCAC	114	2018	Mar 2019	Feb 2020	Apr 2022	Aug 2022	Feb 2023	May 2023	Jul 2023	-	-	-	-	1.079	1.079
LCAC	115	2018	Mar 2019	Apr 2020	Jun 2022	Aug 2022	Mar 2023	Jun 2023	Jul 2023	-	-	-	-	1.078	1.078
LCAC	116	2018	Mar 2019	Jul 2020	Aug 2022	Jan 2023	Jun 2023	Sep 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	117	2018	Mar 2019	Sep 2020	Sep 2022	Jan 2023	Jul 2023	Oct 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	118	2018	Mar 2019	Nov 2020	Nov 2022	Jan 2023	Aug 2023	Nov 2023	Dec 2023	-	-	-	-	1.079	1.079
LCAC	119	2019	Mar 2019	Feb 2021	Dec 2022	Jun 2023	Nov 2023	Feb 2024	May 2024	-	-	-	-	1.079	1.079
LCAC	120	2019	Mar 2019	Apr 2021	Feb 2023	Jun 2023	Dec 2023	Mar 2024	May 2024	-	-	-	-	1.079	1.079
LCAC	121	2019	Mar 2019	Jun 2021	Apr 2023	Jun 2023	Jan 2024	Apr 2024	May 2024	-	-	-	-	1.102	1.102
LCAC	122	2019	Mar 2019	Jul 2021	May 2023	Nov 2023	Mar 2024	Jul 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	123	2019	Mar 2019	Sep 2021	Jul 2023	Nov 2023	Apr 2024	Aug 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	124	2019	Mar 2019	Nov 2021	Aug 2023	Nov 2023	May 2024	Sep 2024	Oct 2024	-	-	-	-	1.102	1.102
LCAC	125	2019	Mar 2019	Jan 2022	Sep 2023	Mar 2024	Aug 2024	Nov 2024	Feb 2025	-	-	-	-	1.102	1.102
LCAC	126	2019	Mar 2019	Mar 2022	Nov 2023	Mar 2024	Sep 2024	Dec 2024	Feb 2025	-	-	-	-	1.123	1.123
LCAC	127	2021	Dec 2020	May 2022	Jan 2024	Mar 2024	Oct 2024	Jan 2025	Feb 2025	-	-	-	-	1.123	1.123
LCAC	128	2021	Dec 2020	Jul 2022	Mar 2024	Sep 2024	Feb 2025	Jun 2025	Aug 2025	-	-	-	-	1.123	1.123

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LCAC	129	2021	Dec 2020	Sep 2022	May 2024	Sep 2024	Mar 2025	Jul 2025	Aug 2025	-	-	-	-	1.145	1.145
LCAC	130	2021	Dec 2020	Nov 2022	Jul 2024	Sep 2024	Apr 2025	Jul 2025	Aug 2025	-	-	-	-	1.145	1.145
LCAC	131	2022	Mar 2022	Jan 2023	Sep 2024	Mar 2025	Aug 2025	Dec 2025	Mar 2026	-	-	-	-	0.963	0.963
									LCAC Total	**0.300**	**1.151**	**3.287**	**3.829**	**24.440**	**33.007**
LCAC SLEP	65	2016	Mar 2016	Oct 2016	Feb 2018	Mar 2018	Apr 2018	Apr 2018	Feb 2019	0.215	-	-	-	-	0.215
LCAC SLEP	76	2016	Mar 2016	Feb 2017	May 2018	Jun 2018	Jul 2018	Jul 2018	May 2019	0.337	-	-	-	-	0.337
LCAC SLEP	86	2017	Sep 2018	Jan 2019	Apr 2020	May 2020	Jun 2020	Jun 2020	Apr 2021	-	-	0.238	-	-	0.238
LCAC SLEP	87	2017	Sep 2018	Jun 2019	Sep 2020	Oct 2020	Nov 2020	Nov 2020	Sep 2021	-	-	-	0.242	-	0.242
LCAC SLEP	77	2017	Sep 2018	Nov 2019	Feb 2021	Mar 2021	Apr 2021	Apr 2021	Sep 2021	-	-	-	0.242	-	0.242
LCAC SLEP	50	2019	Jun 2019	Apr 2020	Nov 2021	Dec 2021	Jan 2022	Jan 2022	Nov 2022	-	-	-	-	0.257	0.257
									LCAC SLEP Total	**0.552**	**-**	**0.238**	**0.484**	**0.257**	**1.531**
YP SLEP	694	2016	Jul 2018	Aug 2018	Mar 2019	Apr 2019			Mar 2020	0.047	-	-	-	-	0.047
YP SLEP	689	2016	Apr 2019	May 2019	Oct 2019	Jan 2020			Dec 2020	0.046	-	-	-	-	0.046
YP SLEP	692	2016	Apr 2019	May 2019	Oct 2019	Jan 2020			Dec 2020	0.046	-	-	-	-	0.046
YP SLEP	690	2017	Jul 2019	Aug 2019	Jan 2020	Apr 2020			Mar 2021	0.047	-	-	-	-	0.047
YP SLEP	698	2017	Jul 2019	Aug 2019	Jan 2020	Apr 2020			Mar 2021	0.047	-	-	-	-	0.047
YP SLEP	691	2017	Oct 2019	Nov 2019	Apr 2020	Jul 2020			Jun 2021	-	-	-	0.049	-	0.049
YP SLEP	683	2017	Jan 2020	Feb 2020	Jul 2020	Oct 2020			Sep 2021	0.047	-	-	-	-	0.047
YP SLEP	684	2017	Jan 2020	Feb 2020	Jul 2020	Oct 2020			Sep 2021	-	-	-	0.048	-	0.048
YP SLEP	700	2017	Apr 2020	May 2020	Oct 2020	Jan 2021			Dec 2021	-	-	-	0.048	-	0.048
									YP SLEP Total	**0.280**	**-**	**-**	**0.145**	**-**	**0.425**
PUBS	0	2010								41.973	5.540	9.757	9.918	52.863	120.051
									PUBS Total	**41.973**	**5.540**	**9.757**	**9.918**	**52.863**	**120.051**
									Full Funding TOA - Outfitting Total	**624.217**	**104.464**	**181.139**	**267.204**	**1,705.063**	**2,882.087**

Footnotes:

(1) FY20 Outfitting for CVN 79 is required in FY20 to support preliminary acceptance from the shipbuilder in June of FY22 and includes outfitting items required to support propulsion, safe navigation, and aircraft launch and recovery.

Exhibit P-30, Delivery: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5110 / Outfitting

Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
CVN	78	2008	Sep 2008	Aug 2005	May 2017	Jul 2017	Jul 2018	Jul 2019	Jan 2020	78.562	92.116	27.097	56.300	-	254.075
CVN	79 (1)	2013	Jun 2015	Feb 2011	Sep 2024	Nov 2024	Mar 2023	Sep 2024	Oct 2025	-	-	-	-	143.800	143.800
CVN	80	2018	Jan 2019	Jan 2019	Mar 2028	May 2028	Oct 2028	Mar 2029	Apr 2029	-	-	-	-	158.769	158.769
CVN	81	2020	Jan 2019	Jan 2019	Feb 2032	Apr 2032	Sep 2032	Feb 2033	Mar 2033	-	-	-	-	165.215	165.215
									CVN Total	**78.562**	**92.116**	**27.097**	**56.300**	**467.784**	**721.859**
VIRGINIA	787	2011	Dec 2008	Sep 2011	May 2017	May 2017	Oct 2017	Aug 2018	Sep 2018	43.453	2.095	-	-	-	45.548
VIRGINIA	788	2012	Dec 2008	Mar 2012	Sep 2017	Sep 2017	Apr 2018	Oct 2018	Nov 2018	25.075	14.240	-	-	-	39.315
VIRGINIA	789	2012	Dec 2008	Sep 2012	Jun 2018	Jun 2018	Oct 2018	May 2019	May 2019	8.999	24.453	5.000	-	-	38.452
VIRGINIA	790	2013	Dec 2008	Mar 2013	Sep 2018	Sep 2018	Feb 2019	Jul 2019	Aug 2019	5.295	5.132	35.000	-	-	45.427
VIRGINIA	791	2013	Dec 2008	Sep 2013	Jun 2019	Jun 2019	Oct 2019	Jan 2020	May 2020	-	0.783	27.753	13.000	-	41.536
VIRGINIA	792	2014	Apr 2014	May 2014	Oct 2019	Oct 2019	Jan 2020	Jun 2020	Sep 2020	-	-	5.000	36.859	-	41.859
VIRGINIA	793	2014	Apr 2014	Sep 2014	May 2020	May 2020	Jul 2020	Oct 2020	Apr 2021	-	-	5.000	35.285	-	40.285
VIRGINIA	794	2015	Apr 2014	Apr 2015	Sep 2020	Sep 2020	Jan 2021	Apr 2021	Aug 2021	-	-	-	15.888	36.774	52.662
VIRGINIA	795	2015	Apr 2014	Sep 2015	Apr 2021	Apr 2021	Jul 2021	Oct 2021	Mar 2022	-	-	-	6.258	46.435	52.693
VIRGINIA	796	2016	Apr 2014	Mar 2016	Aug 2021	Aug 2021	Nov 2021	Feb 2022	Jul 2022	-	-	-	-	53.804	53.804
VIRGINIA	797	2016	Apr 2014	Sep 2016	Jan 2022	Jan 2022	May 2022	Aug 2022	Dec 2022	-	-	-	-	54.475	54.475
VIRGINIA	798	2017	Apr 2014	Mar 2017	Jun 2022	Jun 2022	Oct 2022	Jan 2023	May 2023	-	-	-	-	54.785	54.785
VIRGINIA	799	2017	Apr 2014	Sep 2017	Dec 2022	Dec 2022	Apr 2023	Jul 2023	Nov 2023	-	-	-	-	55.785	55.785
VIRGINIA	800	2018	Apr 2014	Mar 2018	Apr 2023	Apr 2023	Jul 2023	Oct 2023	Mar 2024	-	-	-	-	55.921	55.921
VIRGINIA	801	2018	Apr 2014	Sep 2018	Sep 2023	Sep 2023	Jan 2024	Apr 2024	Aug 2024	-	-	-	-	56.911	56.911
VIRGINIA	802	2019	Apr 2019	Mar 2019	Jan 2025	Jan 2025	Apr 2025	Aug 2025	Dec 2025	-	-	-	-	32.000	32.000
VIRGINIA	803	2019	Apr 2019	Sep 2019	Nov 2025	Nov 2025	Jan 2026	Apr 2026	Oct 2026	-	-	-	-	21.000	21.000
VIRGINIA	804	2020	Apr 2019	Mar 2020	Jan 2026	Jan 2026	Apr 2026	Jul 2026	Dec 2026	-	-	-	-	16.180	16.180
									VIRGINIA Total	**82.822**	**46.703**	**77.753**	**107.290**	**484.070**	**798.638**
CVN-RCOH	73	2016	Aug 2017	Aug 2017	Aug 2021	Oct 2021	Aug 2021	Aug 2022	Sep 2022	-	-	-	-	38.596	38.596
CVN-RCOH	74	2020	Jan 2021	Jan 2021	Jan 2025	Mar 2025	Jan 2025	Jan 2026	Feb 2026	-	-	-	-	44.404	44.404
									CVN-RCOH Total	**-**	**-**	**-**	**-**	**83.000**	**83.000**
DDG 1000	1000	2007	Feb 2008	Feb 2009	Sep 2019	Jan 2020	Jul 2020	Dec 2020	Dec 2020	142.808	24.582	17.115	31.852	12.177	228.534
DDG 1000	1001	2007	Sep 2011	Mar 2010	Sep 2020	Oct 2020	Apr 2021	Jul 2021	Sep 2021	5.429	9.471	13.404	25.586	44.192	98.082
DDG 1000	1002	2009	Sep 2011	Apr 2012	Sep 2022	Oct 2022	Apr 2023	Jul 2023	Sep 2023	1.200	-	-	-	120.875	122.075
									DDG 1000 Total	**149.437**	**34.053**	**30.519**	**57.438**	**177.244**	**448.691**
DDG	114	2011	Sep 2011	Sep 2013	Nov 2017	Mar 2018	Oct 2018	Feb 2019	Feb 2019	23.198	17.257	-	-	-	40.455
DDG	116	2012	Feb 2012	Feb 2013	Jun 2018	Oct 2018	May 2019	Sep 2019	Sep 2019	-	15.283	19.063	-	-	34.346
DDG	117	2013	Jun 2013	Sep 2014	Feb 2019	Jun 2019	Jan 2020	May 2020	May 2020	-	12.414	20.703	-	-	33.117
DDG	118	2013	Jun 2013	Aug 2015	Apr 2020	Aug 2020	Apr 2021	Jul 2021	Jul 2021	-	-	-	30.784	6.073	36.857
DDG	120	2013	Mar 2014	Sep 2016	Jan 2021	May 2021	Jan 2022	Apr 2022	Apr 2022	-	-	-	-	36.081	36.081
DDG	119	2014	Jun 2013	Jul 2015	Oct 2019	Feb 2020	Aug 2020	Dec 2020	Jan 2021	-	-	-	38.143	-	38.143
DDG	121	2015	Jun 2013	Apr 2016	Jul 2020	Dec 2020	Jul 2021	Nov 2021	Nov 2021	-	-	-	18.613	16.113	34.726
DDG	122	2015	Jun 2013	Sep 2017	Oct 2021	Feb 2022	Oct 2022	Jan 2023	Jan 2023	-	-	-	-	35.905	35.905

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Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
DDG	123	2016	Jun 2013	Jan 2017	Jul 2021	Nov 2021	May 2022	Sep 2022	Oct 2022	-	-	-	-	35.847	35.847
DDG	124	2016	Jun 2013	Jul 2018	Jun 2022	Oct 2022	Apr 2023	Aug 2023	Sep 2023	-	-	-	-	35.846	35.846
DDG	127	2016	Sep 2017	Jul 2018	Nov 2022	Mar 2023	Sep 2023	Jan 2024	Feb 2024	-	-	-	-	36.937	36.937
DDG	125	2017	Jun 2013	May 2018	Apr 2023	Aug 2023	Feb 2024	Jun 2024	Jul 2024	-	-	-	-	32.497	32.497
DDG	126	2017	Jun 2013	Apr 2019	Jun 2024	Oct 2024	Apr 2025	Aug 2025	Sep 2025	-	-	-	-	39.456	39.456
DDG	128	2018	Sep 2018	Jun 2020	Oct 2024	Feb 2025	Aug 2025	Dec 2025	Jan 2026	-	-	-	-	43.013	43.013
DDG	129	2018	Sep 2018	May 2021	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	56.372	56.372
DDG	130	2019	Sep 2018	Jul 2020	Jul 2025	Nov 2025	May 2026	Sep 2026	Oct 2026	-	-	-	-	61.734	61.734
DDG	131	2019	Sep 2018	Mar 2022	Apr 2026	Aug 2026	Feb 2027	Jun 2027	Jul 2027	-	-	-	-	61.734	61.734
DDG	135	2020	Jun 2020	Nov 2022	Mar 2027	Aug 2027	Feb 2028	Jun 2028	Jul 2028	-	-	-	-	57.304	57.304
									DDG Total	**23.198**	**44.954**	**39.766**	**87.540**	**554.912**	**750.370**
LCS	6	2010	Dec 2010	Aug 2011	Aug 2015	Nov 2015	Jun 2017	Aug 2018	Oct 2018	75.049	6.456	-	-	-	81.505
LCS	5	2010	Dec 2010	Aug 2011	Oct 2015	Nov 2015	Jan 2017	May 2018	Jun 2018	86.383	6.745	-	-	-	93.128
LCS	8	2011	Mar 2011	Jul 2012	Jun 2016	Sep 2016	May 2017	Jun 2018	Jun 2018	44.958	2.707	-	-	-	47.665
LCS	7	2011	Mar 2011	Apr 2012	Aug 2016	Oct 2016	May 2017	Apr 2018	Jun 2018	44.500	3.349	-	-	-	47.849
LCS	10	2012	Mar 2012	Mar 2013	Dec 2016	May 2017	Feb 2018	Oct 2018	Oct 2018	31.174	11.731	-	-	-	42.905
LCS	12	2012	Mar 2012	Sep 2013	Sep 2017	Nov 2017	Jul 2018	Jan 2019	Mar 2019	30.071	15.004	-	-	-	45.075
LCS	9	2012	Mar 2012	Jan 2013	Sep 2017	Dec 2017	Dec 2018	Jul 2019	Aug 2019	31.181	9.007	-	-	-	40.188
LCS	11	2012	Mar 2012	Aug 2013	Aug 2018	Jun 2019	Oct 2019	May 2020	May 2020	27.169	6.617	6.585	-	-	40.371
LCS	14	2013	Mar 2013	Feb 2014	Feb 2018	Aug 2018	Mar 2019	Oct 2019	Oct 2019	5.894	14.935	18.914	-	-	39.743
LCS	16	2013	Mar 2013	Sep 2014	Apr 2018	Feb 2019	Jun 2019	Nov 2019	Jan 2020	0.100	19.191	20.876	-	-	40.167
LCS	13	2013	Mar 2013	Feb 2014	Aug 2018	Apr 2019	Jul 2019	Feb 2020	Mar 2020	0.200	11.221	26.832	1.117	-	39.370
LCS	15	2013	Mar 2013	Dec 2014	Feb 2019	Feb 2020	Apr 2020	Dec 2020	Jan 2021	-	1.300	18.684	20.957	-	40.941
LCS	18	2014	Mar 2014	Mar 2015	Aug 2018	Jun 2019	Oct 2019	Mar 2020	May 2020	-	12.770	20.343	6.916	-	40.029
LCS	20	2014	Mar 2014	Feb 2016	Jul 2019	Feb 2020	Jul 2020	Oct 2020	Nov 2020	-	-	13.724	24.790	2.455	40.969
LCS	17	2014	Mar 2014	Aug 2015	Jul 2019	Apr 2020	Aug 2020	Feb 2021	Mar 2021	-	-	8.711	29.132	3.081	40.924
LCS	19	2014	Mar 2014	Aug 2016	Feb 2020	Oct 2020	Mar 2021	Aug 2021	Sep 2021	-	-	2.503	25.663	12.805	40.971
LCS	22	2015	Mar 2015	Dec 2016	Aug 2019	Jun 2020	Oct 2020	Mar 2021	May 2021	-	-	2.991	15.942	21.774	40.707
LCS	24	2015	Mar 2015	Jul 2017	Apr 2020	Jan 2021	Jun 2021	Nov 2021	Dec 2021	-	-	-	6.188	34.483	40.671
LCS	21	2015	Mar 2015	Feb 2017	Oct 2020	Aug 2021	Jan 2022	Jul 2022	Jul 2022	-	-	-	5.656	34.697	40.353
LCS	26	2016	Mar 2016	Jan 2018	Nov 2020	Aug 2021	Jan 2022	Jun 2022	Jul 2022	-	-	-	-	40.257	40.257
LCS	23	2016	Nov 2015	Sep 2017	Jun 2021	Feb 2022	Jul 2022	Dec 2022	Jan 2023	-	-	-	-	40.752	40.752
LCS	25	2016	Mar 2016	Feb 2018	Feb 2022	Oct 2022	Mar 2023	Sep 2023	Sep 2023	-	-	-	-	40.426	40.426
LCS	28	2017	Jun 2017	Oct 2018	Jan 2022	Oct 2022	Mar 2023	Aug 2023	Sep 2023	-	-	-	-	40.426	40.426
LCS	27	2017	Oct 2017	Nov 2018	Oct 2022	Jun 2023	Nov 2023	Apr 2024	May 2024	-	-	-	-	40.874	40.874
LCS	30	2017	Oct 2017	May 2019	Oct 2022	Jul 2023	Dec 2023	May 2024	Jun 2024	-	-	-	-	41.645	41.645
LCS	29	2018	Sep 2018	Dec 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.532	41.532
LCS	32	2018	Sep 2018	Nov 2019	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.868	41.868
LCS	34	2018	Sep 2018	Feb 2020	Sep 2023	Jun 2024	Nov 2024	May 2025	May 2025	-	-	-	-	41.868	41.868

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Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
LCS	36	2019	Dec 2018	May 2020	Dec 2023	Sep 2024	Feb 2025	Aug 2025	Aug 2025	-	-	-	-	42.375	42.375
LCS	31	2019	Jan 2019	Jun 2020	Jan 2024	Oct 2024	Mar 2025	Sep 2025	Sep 2025	-	-	-	-	42.363	42.363
LCS	38	2019	Dec 2018	Nov 2020	Jun 2024	Mar 2025	Aug 2025	Feb 2026	Feb 2026	-	-	-	-	42.375	42.375
									LCS Total	**376.679**	**121.033**	**140.163**	**136.361**	**606.056**	**1,380.292**
LPD	27	2012	Jul 2012	Aug 2012	Sep 2017	Apr 2018	Nov 2018	Aug 2019	Aug 2019	28.171	21.720	1.988	-	-	51.879
LPD	28	2016	Dec 2016	Dec 2016	Sep 2021	Feb 2022	Aug 2022	Jan 2023	Jan 2023	-	-	-	0.207	67.558	67.765
LPD	29	2017	Feb 2018	Jul 2018	Jul 2023	Mar 2024	Sep 2024	Feb 2025	Feb 2025	-	-	-	-	62.335	62.335
									LPD Total	**28.171**	**21.720**	**1.988**	**0.207**	**129.893**	**181.979**
ESB	4	2014	Dec 2014	Oct 2015	Feb 2018	Jun 2018	Jan 2019	May 2019	May 2019	-	7.380	7.787	-	1.202	16.369
ESB	5	2016	Dec 2016	Jan 2017	Sep 2019	Dec 2019	Sep 2020	Nov 2020	Nov 2020	-	-	7.093	9.177	0.016	16.286
ESB	6	2018	Jun 2019	Dec 2019	Feb 2022	May 2022	Feb 2023	Apr 2023	Apr 2023	-	-	-	-	13.437	13.437
ESB	7	2019	Jun 2019	May 2021	Jul 2023	Oct 2023	Jul 2024	Sep 2024	Sep 2024	-	-	-	-	11.882	11.882
ESB	8	2023	Jun 2023	May 2024	Jul 2026	Oct 2026	Jul 2027	Sep 2027	Sep 2027	-	-	-	-	11.125	11.125
									ESB Total	**-**	**7.380**	**14.880**	**9.177**	**37.662**	**69.099**
LHA	7	2011	May 2012	Jul 2013	Jun 2019	Jun 2020	Nov 2020	Feb 2021	May 2021	-	7.140	24.239	11.361	13.840	56.580
LHA	8	2017	Jun 2017	Oct 2018	Jan 2024	Sep 2024	Mar 2025	Jun 2025	Aug 2025	-	-	-	-	55.219	55.219
									LHA Total	**-**	**7.140**	**24.239**	**11.361**	**69.059**	**111.799**
EPF	9	2012	Feb 2012	Nov 2015	Dec 2017	Mar 2018	Jan 2019	Apr 2019	Apr 2019	2.341	1.603	-	-	-	3.944
EPF	10	2013	Dec 2012	Jun 2016	Nov 2018	Feb 2019	Aug 2019	Oct 2019	Jan 2020	1.903	0.952	-	-	-	2.855
EPF	11	2015	Sep 2016	Jan 2017	Apr 2019	Jul 2019	Jan 2020	Mar 2020	Jun 2020	-	0.465	3.611	-	-	4.076
EPF	12	2016	Sep 2016	Sep 2017	Feb 2020	May 2020	Nov 2020	Jan 2021	Apr 2021	-	-	0.602	2.403	0.002	3.007
EPF	13	2018	Mar 2019	Nov 2019	Nov 2021	Feb 2022	Aug 2022	Oct 2022	Jan 2023	-	-	-	-	3.586	3.586
									EPF Total	**4.244**	**3.020**	**4.213**	**2.403**	**3.588**	**17.468**
T-AO	205	2016	Jun 2016	Sep 2018	Nov 2020	Feb 2021	Jun 2021	Sep 2021	Jan 2022	-	-	-	4.197	14.518	18.715
T-AO	206	2018	Mar 2018	Jul 2019	Sep 2021	Dec 2021	Apr 2022	Jul 2022	Nov 2022	-	-	-	-	17.326	17.326
T-AO	207	2019	Dec 2018	Jun 2020	Jul 2022	Oct 2022	Feb 2023	May 2023	Sep 2023	-	-	-	-	12.398	12.398
T-AO	208	2019	Dec 2018	Nov 2020	Dec 2022	Mar 2023	Jul 2023	Oct 2023	Feb 2024	-	-	-	-	12.515	12.515
T-AO	209	2020	Jan 2020	Nov 2021	Dec 2023	Mar 2024	Jul 2024	Oct 2024	Feb 2025	-	-	-	-	12.594	12.594
T-AO	210	2020	Jan 2020	Apr 2022	May 2024	Aug 2024	Dec 2024	Mar 2025	Jul 2025	-	-	-	-	12.753	12.753
T-AO	211	2021	Jan 2021	Nov 2022	Dec 2024	Mar 2025	Jul 2025	Oct 2025	Feb 2026	-	-	-	-	13.001	13.001
									T-AO Total	**-**	**-**	**-**	**4.197**	**95.105**	**99.302**
T-ATS(X)	1601	2016	Mar 2018	Mar 2019	Mar 2021	Apr 2021	Aug 2021	Aug 2021	Mar 2022	-	-	-	2.486	1.800	4.286
T-ATS(X)	1801	2018	Mar 2019	Oct 2019	Jul 2021	Aug 2021	Mar 2022	Mar 2022	Jul 2022	-	-	-	-	4.667	4.667
									T-ATS(X) Total	**-**	**-**	**-**	**2.486**	**6.467**	**8.953**
LCAC	102	2015	Mar 2015	Sep 2016	Nov 2019	Mar 2020	Aug 2020	Nov 2020	Jan 2021	-	-	1.430	-	-	1.430
LCAC	101	2015	Dec 2012	Mar 2015	Dec 2019	Mar 2020	Jun 2020	Aug 2020	Jan 2021	-	1.738	0.250	-	-	1.988
LCAC	103	2015	Mar 2015	Nov 2016	Dec 2019	Mar 2020	Sep 2020	Dec 2020	Jan 2021	-	-	1.410	0.105	-	1.515
LCAC	104	2016	Mar 2016	Feb 2017	Mar 2020	Aug 2020	Jan 2021	Apr 2021	Jul 2021	-	-	-	1.264	0.230	1.494
LCAC	105	2016	Mar 2016	May 2017	May 2020	Aug 2020	Feb 2021	May 2021	Jul 2021	-	-	-	1.480	0.020	1.500

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Ship Class	Hull Number	Program Year	Contract Award	Start of Const.	Delivery Date	CFO	PSA Start	PSA Finish	OWL Date	Prior Years	FY 2018	FY 2019	FY 2020	To Complete	Total
LCAC	106	2016	Mar 2016	Oct 2017	Jun 2020	Aug 2020	Mar 2021	Jun 2021	Jul 2021	-	-	-	1.475	0.025	1.500
LCAC	107	2016	Mar 2016	Apr 2018	Oct 2020	Oct 2021	Mar 2022	Jun 2022	Sep 2022	-	-	-	1.470	0.020	1.490
LCAC	108	2016	Mar 2016	Jul 2018	Dec 2020	Oct 2021	Apr 2022	Jul 2022	Sep 2022	-	-	-	1.470	0.015	1.485
LCAC	109	2017	Mar 2019	Dec 2018	Aug 2021	Oct 2021	May 2022	Aug 2022	Sep 2022	-	-	-	-	1.810	1.810
LCAC	110	2017	Mar 2019	Mar 2019	Oct 2021	Apr 2022	Sep 2022	Dec 2022	Mar 2023	-	-	-	-	1.826	1.826
LCAC	111	2018	Mar 2019	Jul 2019	Dec 2021	Apr 2022	Oct 2022	Jan 2023	Mar 2023	-	-	-	-	1.731	1.731
LCAC	112	2018	Mar 2019	Sep 2019	Jan 2022	Apr 2022	Nov 2022	Feb 2023	Mar 2023	-	-	-	-	1.700	1.700
LCAC	113	2018	Mar 2019	Nov 2019	Mar 2022	Aug 2022	Jan 2023	Apr 2023	Jul 2023	-	-	-	-	1.690	1.690
LCAC	114	2018	Mar 2019	Feb 2020	Apr 2022	Aug 2022	Feb 2023	May 2023	Jul 2023	-	-	-	-	1.642	1.642
LCAC	115	2018	Mar 2019	Apr 2020	Jun 2022	Aug 2022	Mar 2023	Jun 2023	Jul 2023	-	-	-	-	1.642	1.642
LCAC	116	2018	Mar 2019	Jul 2020	Aug 2022	Jan 2023	Jun 2023	Sep 2023	Dec 2023	-	-	-	-	1.642	1.642
LCAC	117	2018	Mar 2019	Sep 2020	Sep 2022	Jan 2023	Jul 2023	Oct 2023	Dec 2023	-	-	-	-	1.642	1.642
LCAC	118	2018	Mar 2019	Nov 2020	Nov 2022	Jan 2023	Aug 2023	Nov 2023	Dec 2023	-	-	-	-	1.668	1.668
LCAC	119	2019	Mar 2019	Feb 2021	Dec 2022	Jun 2023	Nov 2023	Feb 2024	May 2024	-	-	-	-	1.463	1.463
LCAC	120	2019	Mar 2019	Apr 2021	Feb 2023	Jun 2023	Dec 2023	Mar 2024	May 2024	-	-	-	-	1.393	1.393
LCAC	121	2019	Mar 2019	Jun 2021	Apr 2023	Jun 2023	Jan 2024	Apr 2024	May 2024	-	-	-	-	1.367	1.367
LCAC	122	2019	Mar 2019	Jul 2021	May 2023	Nov 2023	Mar 2024	Jul 2024	Oct 2024	-	-	-	-	1.123	1.123
LCAC	123	2019	Mar 2019	Sep 2021	Jul 2023	Nov 2023	Apr 2024	Aug 2024	Oct 2024	-	-	-	-	1.101	1.101
LCAC	124	2019	Mar 2019	Nov 2021	Aug 2023	Nov 2023	May 2024	Sep 2024	Oct 2024	-	-	-	-	1.100	1.100
LCAC	125	2019	Mar 2019	Jan 2022	Sep 2023	Mar 2024	Aug 2024	Nov 2024	Feb 2025	-	-	-	-	1.098	1.098
LCAC	126	2019	Mar 2019	Mar 2022	Nov 2023	Mar 2024	Sep 2024	Dec 2024	Feb 2025	-	-	-	-	1.095	1.095
LCAC	127	2021	Dec 2020	May 2022	Jan 2024	Mar 2024	Oct 2024	Jan 2025	Feb 2025	-	-	-	-	1.096	1.096
LCAC	128	2021	Dec 2020	Jul 2022	Mar 2024	Sep 2024	Feb 2025	Jun 2025	Aug 2025	-	-	-	-	1.090	1.090
LCAC	129	2021	Dec 2020	Sep 2022	May 2024	Sep 2024	Mar 2025	Jul 2025	Aug 2025	-	-	-	-	1.086	1.086
LCAC	130	2021	Dec 2020	Nov 2022	Jul 2024	Sep 2024	Apr 2025	Jul 2025	Aug 2025	-	-	-	-	1.082	1.082
LCAC	131	2022	Mar 2022	Jan 2023	Sep 2024	Mar 2025	Aug 2025	Dec 2025	Mar 2026	-	-	-	-	1.080	1.080
LCAC	132	2022	Mar 2022	Mar 2023	Nov 2024	Mar 2025	Sep 2025	Dec 2025	Mar 2026	-	-	-	-	1.075	1.075
LCAC	133	2022	Mar 2022	May 2023	Jan 2025	Mar 2025	Oct 2025	Jan 2026	Mar 2026	-	-	-	-	1.443	1.443
									LCAC Total	**-**	**1.738**	**3.090**	**7.264**	**34.995**	**47.087**
LCAC SLEP	65	2016	Mar 2016	Oct 2016	Feb 2018	Mar 2018	Apr 2018	Apr 2018	Feb 2019	-	0.081	-	-	-	0.081
LCAC SLEP	76	2016	Mar 2016	Feb 2017	May 2018	Jun 2018	Jul 2018	Jul 2018	May 2019	-	0.082	-	-	-	0.082
LCAC SLEP	86	2017	Sep 2018	Jan 2019	Apr 2020	May 2020	Jun 2020	Jun 2020	Apr 2021	-	-	-	0.150	-	0.150
LCAC SLEP	87	2017	Sep 2018	Jun 2019	Sep 2020	Oct 2020	Nov 2020	Nov 2020	Sep 2021	-	-	-	-	0.150	0.150
LCAC SLEP	77	2017	Sep 2018	Nov 2019	Feb 2021	Mar 2021	Apr 2021	Apr 2021	Sep 2021	-	-	-	-	0.150	0.150
LCAC SLEP	50	2019	Jun 2019	Apr 2020	Nov 2021	Dec 2021	Jan 2022	Jan 2022	Nov 2022	-	-	-	-	0.150	0.150
									LCAC SLEP Total	**-**	**0.163**	**-**	**0.150**	**0.450**	**0.763**
									Full Funding TOA - Post Delivery Total	**743.113**	**380.020**	**363.708**	**482.174**	**2,750.285**	**4,719.300**

Footnotes:

Exhibit P-30, Delivery: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5110 / Outfitting

(1) FY20 Outfitting for CVN 79 is required in FY20 to support preliminary acceptance from the shipbuilder in June of FY22 and includes outfitting items required to support propulsion, safe navigation, and aircraft launch and recovery.

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5112 / Ship to Shore Connector

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	10	8	8	-	-	-	4	7	5	5	24	71
Gross/Weapon System Cost *($ in Millions)*	536.497	524.554	507.875	0.000	0.000	0.000	274.140	476.245	352.040	359.094	1,624.090	4,654.535
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Less Cost To Complete *($ in Millions)*	14.500	-	-	-	-	-	-	-	-	-	-	14.500
Less Previously Appropriated RDT&E,N *($ in Millions)*	23.700	-	-	-	-	-	-	-	-	-	-	23.700
Net Procurement (P-1) *($ in Millions)*	498.297	524.554	507.875	0.000	0.000	0.000	274.140	476.245	352.040	359.094	1,624.090	4,616.335
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Plus Cost To Complete *($ in Millions)*	-	5.100	9.400	-	-	-	-	-	-	-	-	14.500
Plus Previously Appropriated RDT&E,N *($ in Millions)*	23.700	-	-	-	-	-	-	-	-	-	-	23.700
Total Obligation Authority *($ in Millions)*	**521.997**	**529.654**	**517.275**	**0.000**	**0.000**	**0.000**	**274.140**	**476.245**	**352.040**	**359.094**	**1,624.090**	**4,654.535**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	0.300	2.889	6.377	11.093	-	11.093	19.876	8.499	13.608	13.880	62.950	139.472
Total *($ in Millions)*	**522.297**	**532.543**	**523.652**	**11.093**	**-**	**11.093**	**294.016**	**484.744**	**365.648**	**372.974**	**1,687.040**	**4,794.007**
Gross/Weapon System Unit Cost *($ in Millions)*	53.650	65.569	63.484	-	-	-	68.535	68.035	70.408	71.819	67.670	65.557

Description:

The Ship to Shore Connector (SSC) program provides the capability to rapidly move assault forces with the littoral operational environment to accomplish Unified Command Plan (UCP) missions and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. SSC provides the functional replacement for the LCAC Class of ships, which began reaching extended service life in 2015.

The Test and Training craft (Craft 100) and R&D costs for LCAC 101 are funded in RDT&E PE 0604567N and PE 0605220N Project 3137.

The Department of Defense Appropriations Act, 2015 directed that the Department complete LCAC 101 in the Shipbuilding and Conversion, Navy Appropriation. LCAC 101 is partially financed with $23.7M of FY 13/FY 14 R&D funding.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5112 / Ship to Shore Connector

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:	Aluminum
Length Overall	91.8 ft
Beam	48.3 ft
Displacement	180.57 metric tons
Draft	N/A

Production Status:	LCAC 101	LCAC 102	LCAC 103	LCAC 104	LCAC 105	LCAC 106	LCAC 107
Contract Award Date	Dec 2012	Mar 2015	Mar 2015	Mar 2016	Mar 2016	Mar 2016	Mar 2016
Months to Completion							
a) Award to Delivery	84 months	56 months	57 months	48 months	50 months	51 months	55 months
b) Construction Start to Delivery	57 months	38 months	37 months	37 months	36 months	32 months	30 months
Delivery Date	Dec 2019	Nov 2019	Dec 2019	Mar 2020	May 2020	Jun 2020	Oct 2020
Completion Of Fitting Out	Mar 2020	Mar 2020	Mar 2020	Aug 2020	Aug 2020	Aug 2020	Oct 2021
Obligation Work Limit Date	Jan 2021	Jan 2021	Jan 2021	Jul 2021	Jul 2021	Jul 2021	Sep 2022

Production Status:	LCAC 108	LCAC 109	LCAC 110	LCAC 111	LCAC 112	LCAC 113	LCAC 114
Contract Award Date	Mar 2016	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019
Months to Completion							
a) Award to Delivery	57 months	29 months	31 months	33 months	34 months	36 months	37 months
b) Construction Start to Delivery	29 months	32 months	31 months	29 months	28 months	28 months	26 months
Delivery Date	Dec 2020	Aug 2021	Oct 2021	Dec 2021	Jan 2022	Mar 2022	Apr 2022
Completion Of Fitting Out	Oct 2021	Oct 2021	Apr 2022	Apr 2022	Apr 2022	Aug 2022	Aug 2022
Obligation Work Limit Date	Sep 2022	Sep 2022	Mar 2023	Mar 2023	Mar 2023	Jul 2023	Jul 2023

Production Status:	LCAC 115	LCAC 116	LCAC 117	LCAC 118	LCAC 119	LCAC 120	LCAC 121
Contract Award Date	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019
Months to Completion							
a) Award to Delivery	39 months	41 months	42 months	44 months	45 months	47 months	49 months
b) Construction Start to Delivery	26 months	25 months	24 months	24 months	22 months	22 months	22 months
Delivery Date	Jun 2022	Aug 2022	Sep 2022	Nov 2022	Dec 2022	Feb 2023	Apr 2023
Completion Of Fitting Out	Aug 2022	Jan 2023	Jan 2023	Jan 2023	Jun 2023	Jun 2023	Jun 2023
Obligation Work Limit Date	Jul 2023	Dec 2023	Dec 2023	Dec 2023	May 2024	May 2024	May 2024

Production Status:	LCAC 122	LCAC 123	LCAC 124	LCAC 125	LCAC 126
Contract Award Date	Mar 2019	Mar 2019	Mar 2019	Mar 2019	Mar 2019
Months to Completion					
a) Award to Delivery	50 months	52 months	53 months	54 months	56 months
b) Construction Start to Delivery	22 months	22 months	21 months	20 months	20 months
Delivery Date	May 2023	Jul 2023	Aug 2023	Sep 2023	Nov 2023
Completion Of Fitting Out	Nov 2023	Nov 2023	Nov 2023	Mar 2024	Mar 2024
Obligation Work Limit Date	Oct 2024	Oct 2024	Oct 2024	Feb 2025	Feb 2025

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy			Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost		P-1 Line Item Number / Title: 5112 / Ship to Shore Connector	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A		Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A			

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	Apr 2008	May 2009		
Contract Design	May 2009	Jul 2010		
Detail Design	Jul 2012	Sep 2014		
Request for Proposals	May 2011	Jul 2012		
Design Agent	NAVSEA/TEXTRON,INC			

Classification of Cost Estimate:

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5112 / Ship to Shore Connector

Cost Categories (†) indicates the presence of a P-8a	FY 2015		FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)	Qty (Each)	Total Cost ($ M)
Plan Costs	3		5		2		8		8		0	
Basic Construction/Conversion		152.103		191.718		94.260		396.161		376.166		-
Change Orders		6.425		5.109		2.833		11.592		11.200		-
Electronics		4.057		8.500		4.162		16.813		17.152		-
Hull, Mechanical, and Electrical (HM&E) (†)		12.547		4.000		22.140		89.354		92.232		-
Ordnance		0.010		0.015		0.006		0.025		0.025		-
Other Cost		22.658		1.288		4.659		10.609		11.100		-
Total Ship Estimate		**197.800**		**210.630**		**128.060**		**524.554**		**507.875**		**-**
Less Cost to Complete FY 2018		5.100		-		-		-		-		-
Less Cost to Complete FY 2019		9.400		-		-		-		-		-
Less RDTEN FY 2013		21.486		-		-		-		-		-
Less RDTEN FY 2014		2.214		-		-		-		-		-
Net P-1 Funding		**159.600**		**210.630**		**128.060**		**524.554**		**507.875**		**-**

Remarks:
HM&E increased from PB 2019 to support engine procurement.

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5112 / Ship to Shore Connector		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LCAC 101	TEXTRON, INC	2015	Dec 2012	Mar 2015	Dec 2019
LCAC 102	TEXTRON, INC	2015	Mar 2015	Sep 2016	Nov 2019
LCAC 103	TEXTRON, INC	2015	Mar 2015	Nov 2016	Dec 2019
LCAC 104	TEXTRON, INC	2016	Mar 2016	Feb 2017	Mar 2020
LCAC 105	TEXTRON, INC	2016	Mar 2016	May 2017	May 2020
LCAC 106	TEXTRON, INC	2016	Mar 2016	Oct 2017	Jun 2020
LCAC 107	TEXTRON, INC	2016	Mar 2016	Apr 2018	Oct 2020
LCAC 108	TEXTRON, INC	2016	Mar 2016	Jul 2018	Dec 2020
LCAC 109	TEXTRON, INC	2017	Mar 2019	Dec 2018	Aug 2021
LCAC 110	TEXTRON, INC	2017	Mar 2019	Mar 2019	Oct 2021
LCAC 111	TEXTRON, INC	2018	Mar 2019	Jul 2019	Dec 2021
LCAC 112	TEXTRON, INC	2018	Mar 2019	Sep 2019	Jan 2022
LCAC 113	TEXTRON, INC	2018	Mar 2019	Nov 2019	Mar 2022
LCAC 114	TEXTRON, INC	2018	Mar 2019	Feb 2020	Apr 2022
LCAC 115	TEXTRON, INC	2018	Mar 2019	Apr 2020	Jun 2022
LCAC 116	TEXTRON, INC	2018	Mar 2019	Jul 2020	Aug 2022
LCAC 117	TEXTRON, INC	2018	Mar 2019	Sep 2020	Sep 2022
LCAC 118	TEXTRON, INC	2018	Mar 2019	Nov 2020	Nov 2022
LCAC 119	TBD	2019	Mar 2019	Feb 2021	Dec 2022
LCAC 120	TBD	2019	Mar 2019	Apr 2021	Feb 2023
LCAC 121	TBD	2019	Mar 2019	Jun 2021	Apr 2023
LCAC 122	TBD	2019	Mar 2019	Jul 2021	May 2023
LCAC 123	TBD	2019	Mar 2019	Sep 2021	Jul 2023
LCAC 124	TBD	2019	Mar 2019	Nov 2021	Aug 2023
LCAC 125	TBD	2019	Mar 2019	Jan 2022	Sep 2023
LCAC 126	TBD	2019	Mar 2019	Mar 2022	Nov 2023
LCAC 127	TBD	2021	Dec 2020	May 2022	Jan 2024
LCAC 128	TBD	2021	Dec 2020	Jul 2022	Mar 2024
LCAC 129	TBD	2021	Dec 2020	Sep 2022	May 2024
LCAC 130	TBD	2021	Dec 2020	Nov 2022	Jul 2024
LCAC 131	TBD	2022	Mar 2022	Jan 2023	Sep 2024
LCAC 132	TBD	2022	Mar 2022	Mar 2023	Nov 2024
LCAC 133	TBD	2022	Mar 2022	May 2023	Jan 2025

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5112 / Ship to Shore Connector		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LCAC 134	TBD	2022	Mar 2022	Jul 2023	Mar 2025
LCAC 135	TBD	2022	Mar 2022	Sep 2023	May 2025
LCAC 136	TBD	2022	Mar 2022	Nov 2023	Jul 2025
LCAC 137	TBD	2022	Mar 2022	Jan 2024	Sep 2025
LCAC 138	TBD	2023	Mar 2023	Mar 2024	Nov 2025
LCAC 139	TBD	2023	Mar 2023	May 2024	Jan 2026
LCAC 140	TBD	2023	Mar 2023	Jul 2024	Mar 2026
LCAC 141	TBD	2023	Mar 2023	Sep 2024	May 2026
LCAC 142	TBD	2023	Mar 2023	Nov 2024	Jul 2026
LCAC 143	TBD	2024	Mar 2024	Jan 2025	Sep 2026
LCAC 144	TBD	2024	Mar 2024	Mar 2025	Nov 2026
LCAC 145	TBD	2024	Mar 2024	May 2025	Jan 2027
LCAC 146	TBD	2024	Mar 2024	Jul 2025	Mar 2027
LCAC 147	TBD	2024	Mar 2024	Sep 2025	May 2027

Exhibit P-8a, Analysis of Ship Cost Estimates: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5112 / Ship to Shore Connector

Hull, Mechanical, and Electrical (HM&E)	FY 2018		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Major Items				
MT7 Engines	32	77.564	32	80.058
Material/Services		11.790		12.174
Major Items Subtotal		**89.354**		**92.232**
Other Cost Elements				
New Cost Element				
Other Cost Elements Subtotal				
Total Hull, Mechanical, and Electrical (HM&E)		**89.354**		**92.232**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5113 / Service Craft

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	43	5	4	6	-	6	15	12	7	8	-	100
Gross/Weapon System Cost *($ in Millions)*	200.406	62.994	72.062	56.289	0.000	56.289	118.178	108.657	110.865	113.083	-	842.534
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	200.406	62.994	72.062	56.289	0.000	56.289	118.178	108.657	110.865	113.083	-	842.534
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**200.406**	**62.994**	**72.062**	**56.289**	**0.000**	**56.289**	**118.178**	**108.657**	**110.865**	**113.083**	**-**	**842.534**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	3.000	-	-	-	-	-	-	-	-	-	-	3.000
Total *($ in Millions)*	**203.406**	**62.994**	**72.062**	**56.289**	**-**	**56.289**	**118.178**	**108.657**	**110.865**	**113.083**	**-**	**845.534**
Gross/Weapon System Unit Cost *($ in Millions)*	4.661	12.599	18.016	9.382	-	9.382	7.879	9.055	15.838	14.135	-	8.425

Description:

The US Navy owns/operates approximately 366 Service Craft consisting of 36 different classes of craft at 56 different commands and activities throughout the world. Service Craft provide critical support to carriers, submarines, and other Navy vessels through port operations and ship maintenance. Nearly half of the Service Craft inventory is over 40 years of age. The Service Craft budget supports the acquisition and procurement of replacement craft as follows:

Auxiliary Personnel Lighters - Small (APL(S)):The FY 2018 Omnibus Appropriations Act included a Congressional add for Detail Design and Construction (DD&C) efforts for one APL. APLs provide crew messing, duty crew berthing, and administrative training spaces to ships and improve the quality-of-life for sailors during CNO availabilities.

Harbor Tugs (YTs): YTs provide port operations towing, mooring, docking, undocking and escort of submarines, aircraft carriers, and other Navy vessels.

Fuel Oil Barges (YONs): YONs carry liquid petroleum products for refueling ships.

Waste Oil Barges (YWOs): YWOs support the offload of waste oil from ships and transport for processing.

Covered Lighters (YFNs): YFNs transport ordnance, equipment and cargo which must be protected from weather.

Open Lighters (YCs): YCs transport cargo/equipment and serve as a work platform for ship maintenance.

Repair, Berthing and Messing Barges (YRBMs): YRBMs provide crew messing,duty crew berthing, and administrative spaces for small to mid-size ships and submarines during CNO maintenance availabilities.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5113 / Service Craft

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:	Hull Various	Multiple Craft
Length Overall	Various	Various
Beam	Various	Various
Displacement	Various	Various
Draft	Various	Various

Production Status:	YT 808	YT 809	YT 810	YT 811	APL 67	APL 68	YT 812
Contract Award Date	Jul 2018	Jul 2018	Jul 2018	Jul 2018	Sep 2018	Sep 2018	Dec 2018
Months to Completion							
a) Award to Delivery	18 months	21 months	27 months	31 months	22 months	25 months	28 months
b) Construction Start to Delivery	10 months	13 months	12 months	12 months	15 months	12 months	12 months
Delivery Date	Jan 2020	Apr 2020	Oct 2020	Feb 2021	Jul 2020	Oct 2020	Apr 2021
Completion Of Fitting Out	Apr 2020	Jul 2020	Jan 2021	May 2021	Oct 2020	Jan 2021	Jul 2021
Obligation Work Limit Date	Mar 2021	Jun 2021	Dec 2021	Apr 2022	Sep 2021	Dec 2021	Jun 2022

Production Status:	YWO 05	YON 1801	YWO 04	YT 813	APL 69	YFN 1901	YT 814
Contract Award Date	Aug 2019	Aug 2019	Aug 2019	Mar 2019	May 2019	Jun 2019	Jun 2019
Months to Completion							
a) Award to Delivery	14 months	14 months	16 months	29 months	23 months	8 months	16 months
b) Construction Start to Delivery	10 months	10 months	11 months	12 months	12 months	7 months	12 months
Delivery Date	Oct 2020	Oct 2020	Dec 2020	Aug 2021	Apr 2021	Feb 2020	Oct 2020
Completion Of Fitting Out	Jan 2021	Jan 2021	Mar 2021	Nov 2021	Jul 2021	May 2020	Jan 2021
Obligation Work Limit Date	Dec 2022	Dec 2021	Feb 2022	Oct 2022	Jun 2022	Apr 2021	Dec 2021

Production Status:	YC 2001	YON 2001	YWO 06	YC 2002	YON 2002	APL 70
Contract Award Date	Mar 2020	Mar 2020	Mar 2020	Mar 2020	Mar 2020	Apr 2020
Months to Completion						
a) Award to Delivery	9 months	15 months	9 months	11 months	18 months	19 months
b) Construction Start to Delivery	8 months	14 months	8 months	8 months	14 months	13 months
Delivery Date	Dec 2020	Jun 2021	Dec 2020	Feb 2021	Sep 2021	Nov 2021
Completion Of Fitting Out	Mar 2021	Sep 2021	Mar 2021	May 2021	Dec 2021	Feb 2022
Obligation Work Limit Date	Feb 2022	Aug 2022	Feb 2022	Apr 2022	Nov 2022	Jan 2023

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	N/A	N/A		
Request for Proposals	N/A	N/A		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5113 / Service Craft	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Design Agent				

Classification of Cost Estimate:

Justification:
APL barracks craft provide critical berthing and messing facilities for sailors while their ships are in port for availabilities and Inter-Deployment Training Cycles (IDTC). Even when the Home Port Ashore initiative is fully implemented, berthing barges will still be required to meet the original mission of providing berthing for Duty Crews and messing, training, and office space for the entire crew per OPNAVINST 4700.38B. Thirteen (13) of the seventeen (17) APLs in service were built from 1944-1946; they do not meet current safety standards, are not dual gender-compatible and lack modern communication capabilities. This program for New APLs replaces outdated and dilapidated transport ships and will greatly improve our sailors' quality of life, improve safety during availabilities and save the Navy a significant amount of money over the life of the program.

YT harbor tugboats provide critical vessel docking/undocking, towing, escort, personnel transfer, and emergency services to carriers, ships, and submarines. New YTs are required to meet mission requirements and to replace aging YTB tugboats in the Northwest Region, Yokosuka, and Portsmouth Naval Shipyard.

YON Fuel Oil Barges will greatly reduce the risk of a major fuel oil spill. Many existing YONs are 50-60 years old and of single hull construction. New YON Fuel Oil Barges will be double-hulled and will meet the requirements of the Oil Protection Act of 1990 (OPA 90).

New YWO barges will be double-hulled and will have piping and other systems specifically designed for transferring oily waste. Existing barges being used to transport oily waste are 66 to 78 years old and in extremely poor condition.

New YC Open Lighter and YFN Covered Lighter barges are required to replace the oldest YCs and YFNs in the Fleet, which are over 50 years old and have become unaffordable to overhaul.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5113 / Service Craft

Cost Categories	FY 2016		FY 2017		FY 2018		FY 2019		FY 2020	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Plan Costs	2		3		5		4		6	
Basic Construction/Conversion		28.217		62.132		61.074		69.721		55.161
Change Orders		1.400		2.260		1.220		1.391		0.528
Hull, Mechanical, and Electrical (HM&E)		0.397		0.800		0.700		0.950		0.600
Total Ship Estimate		**30.014**		**65.192**		**62.994**		**72.062**		**56.289**
Net P-1 Funding		**30.014**		**65.192**		**62.994**		**72.062**		**56.289**

Remarks:
FY 16 Craft:
2 YT: $30.014
TOTAL: $30.014

FY 17 Craft:
1 APL: $39.000
2 YT: $26.192
TOTAL: $65.192

FY 18 Craft:
1 YT: $13.660
2 YWO: $ 6.000
1 YON: $ 4.334
1 APL: $39.00
TOTAL: $62.994

FY 19 Craft:
1 APL: $39.808
1 YFN $4.490
2 YT: $27.764
TOTAL: $72.062

FY 20 Craft:
2 YC: $3.264
1 YWO: $ 3.338
2 YON: $ 9.780
1 APL: $39.907
TOTAL: $56.289

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5113 / Service Craft		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
YT 808	DCI	2016	Jul 2018	Mar 2019	Jan 2020
YT 809	DCI	2016	Jul 2018	Mar 2019	Apr 2020
YT 810	DCI	2017	Jul 2018	Oct 2019	Oct 2020
YT 811	DCI	2017	Jul 2018	Feb 2020	Feb 2021
APL 67	VT Halter	2017	Sep 2018	Apr 2019	Jul 2020
APL 68	VT Halter	2018	Sep 2018	Oct 2019	Oct 2020
YT 812	DCI	2018	Dec 2018	Apr 2020	Apr 2021
YWO 05	TBD	2018	Aug 2019	Dec 2019	Oct 2020
YON 1801	TBD	2018	Aug 2019	Dec 2019	Oct 2020
YWO 04	TBD	2018	Aug 2019	Jan 2020	Dec 2020
YT 813	DCI	2019	Mar 2019	Aug 2020	Aug 2021
APL 69	TBD	2019	May 2019	Apr 2020	Apr 2021
YFN 1901	TBD	2019	Jun 2019	Jul 2019	Feb 2020
YT 814	TBD	2019	Jun 2019	Oct 2019	Oct 2020
YC 2001	TBD	2020	Mar 2020	Apr 2020	Dec 2020
YON 2001	TBD	2020	Mar 2020	Apr 2020	Jun 2021
YWO 06	TBD	2020	Mar 2020	Apr 2020	Dec 2020
YC 2002	TBD	2020	Mar 2020	Jun 2020	Feb 2021
YON 2002	TBD	2020	Mar 2020	Jul 2020	Sep 2021
APL 70	TBD	2020	Apr 2020	Oct 2020	Nov 2021
APL 71	TBD	2021	Feb 2021	Mar 2021	Apr 2022
YRBM 2101	TBD	2021	Feb 2021	Jun 2021	Jul 2022
YON 2102	TBD	2021	Mar 2021	Apr 2021	Jun 2022
YWO 07	TBD	2021	Mar 2021	Apr 2021	Jun 2022
YFN 2101	TBD	2021	Mar 2021	Apr 2021	Nov 2021
YC 2101	TBD	2021	Mar 2021	Apr 2021	Oct 2021
YT 815	TBD	2021	Mar 2021	May 2021	May 2022
YFN 2102	TBD	2021	Mar 2021	Jun 2021	Feb 2022
YON 2101	TBD	2021	Mar 2021	Jun 2021	Sep 2022
YC 2102	TBD	2021	Mar 2021	Jun 2021	Dec 2021
YWO 08	TBD	2021	Mar 2021	Jul 2021	Jul 2022
YC 2103	TBD	2021	Mar 2021	Aug 2021	Feb 2022
YWO 09	TBD	2021	Mar 2021	Oct 2021	Dec 2022

Exhibit P-27, Ship Production Schedule: PB 2020 Navy			Date: March 2019		
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		P-1 Line Item Number / Title: 5113 / Service Craft			
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
YC 2105	TBD	2021	Mar 2021	Oct 2021	Apr 2022
YC 2104	TBD	2021	Mar 2021	Oct 2021	Apr 2022
YRBM 2201	TBD	2022	Feb 2022	Mar 2022	Apr 2023
APL 72	TBD	2022	Feb 2022	Jun 2022	Jul 2023
YC 2201	TBD	2022	Mar 2022	Apr 2022	Oct 2022
YWO 10	TBD	2022	Mar 2022	Apr 2022	Jun 2023
YON 2201	TBD	2022	Mar 2022	Apr 2022	Feb 2023
YC 2202	TBD	2022	Mar 2022	Jun 2022	Dec 2022
YWO 12	TBD	2022	Mar 2022	Jul 2022	Sep 2023
YON 2202	TBD	2022	Mar 2022	Jul 2022	Sep 2023
YC 2203	TBD	2022	Mar 2022	Aug 2022	Feb 2023
YC 2204	TBD	2022	Mar 2022	Aug 2022	Feb 2023
YWO 11	TBD	2022	Mar 2022	Oct 2022	Dec 2023
YON 2203	TBD	2022	Apr 2022	Aug 2022	Feb 2023
YON 2301	TBD	2023	Mar 2022	Oct 2022	Dec 2023
YRBM 2301	TBD	2023	Feb 2023	Mar 2023	Apr 2024
APL 73	TBD	2023	Feb 2023	Jun 2023	Jul 2024
YT 816	TBD	2023	Mar 2023	Apr 2023	Apr 2024
YON 2302	TBD	2023	Mar 2023	Apr 2023	Jun 2024
YC 2301	TBD	2023	Mar 2023	Apr 2023	Oct 2023
YON 2303	TBD	2023	Mar 2023	Jun 2023	Sep 2024
YC 15	TBD	2024	Apr 2024	Jun 2024	Dec 2024
YFN 2401	TBD	2024	Apr 2024	Jun 2024	May 2025
YON 2401	TBD	2024	Apr 2024	Jun 2024	Jun 2025
YWO 13	TBD	2024	Apr 2024	Jun 2024	Jun 2025
YT 817	TBD	2024	Apr 2024	Jul 2024	Jul 2025
YRBM 2401	TBD	2024	Apr 2024	Aug 2024	Aug 2025
YON 2402	TBD	2024	Apr 2024	Sep 2024	Sep 2025
APL 74	TBD	2024	Apr 2024	Sep 2024	Oct 2025

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5139 / LCAC SLEP
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	67	-	1	-	-	-	-	-	-	-	-	68
Gross/Weapon System Cost *($ in Millions)*	1,420.497	0.000	23.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,443.818
Less PY Advance Procurement *($ in Millions)*	27.900	-	-	-	-	-	-	-	-	-	-	27.900
Less Cost To Complete *($ in Millions)*	14.000	-	-	-	-	-	-	-	-	-	-	14.000
Less Subsequent Year Full Funding *($ in Millions)*	1.774	-	-	-	-	-	-	-	-	-	-	1.774
Less Hurricane *($ in Millions)*	19.800	-	-	-	-	-	-	-	-	-	-	19.800
Less Transfer *($ in Millions)*	1.500	-	-	-	-	-	-	-	-	-	-	1.500
Net Procurement (P-1) *($ in Millions)*	1,355.523	0.000	23.321	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,378.844
Plus Subsequent Year Full Funding *($ in Millions)*	1.774	-	-	-	-	-	-	-	-	-	-	1.774
Full Funding TOA *($ in Millions)*	1,357.297	-	23.321	-	-	-	-	-	-	-	-	1,380.618
Plus CY Advance Procurement *($ in Millions)*	27.900	-	-	-	-	-	-	-	-	-	-	27.900
Plus Cost To Complete *($ in Millions)*	14.000	-	-	-	-	-	-	-	-	-	-	14.000
Plus Transfer *($ in Millions)*	1.500	-	-	-	-	-	-	-	-	-	-	1.500
Plus Hurricane *($ in Millions)*	19.800	-	-	-	-	-	-	-	-	-	-	19.800
Total Obligation Authority *($ in Millions)*	**1,420.497**	**0.000**	**23.321**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**1,443.818**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	12.882	0.163	0.238	0.634	-	0.634	-	-	-	-	-	13.917
Total *($ in Millions)*	**1,433.379**	**0.163**	**23.559**	**0.634**	**-**	**0.634**	**-**	**-**	**-**	**-**	**-**	**1,457.735**
Gross/Weapon System Unit Cost *($ in Millions)*	21.201	-	23.321	-	-	-	-	-	-	-	-	21.233

Description:

Landing Craft, Air Cushion (LCAC) transports weapon systems, equipment, cargo and personnel of the assault elements of the Marine Air/Ground Task Force from ship to shore and across the beach. The LCAC Service Life Extension Program (SLEP) extends the craft service life from twenty years to thirty years. The program incorporates the following modifications and enhancements: upgrade from the TF40B engines to the ETF40B engines; repair corrosion damage; replace obsolete electronics; upgrade C4N suite; and replace deep skirt.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5139 / LCAC SLEP

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:	Air Cushion
Length Overall	91.8 ft (on cushion)
Beam	49.2 ft (on cushion)
Displacement	106 tons
Draft	None (air cushion)

Production Status:	LCAC SLEP 86	LCAC SLEP 87	LCAC SLEP 77	LCAC SLEP 50
Contract Award Date	Sep 2018	Sep 2018	Sep 2018	Jun 2019
Months to Completion				
a) Award to Delivery	19 months	24 months	29 months	29 months
b) Construction Start to Delivery	15 months	15 months	15 months	19 months
Delivery Date	Apr 2020	Sep 2020	Feb 2021	Nov 2021
Completion Of Fitting Out	May 2020	Oct 2020	Mar 2021	Dec 2021
Obligation Work Limit Date	Apr 2021	Sep 2021	Sep 2021	Nov 2022

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	N/A	N/A		
Request for Proposals	Apr 2018	Jul 2018		
Design Agent	Landing Craft Planning Yard			

Classification of Cost Estimate: N/A

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy	**Date:** March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5139 / LCAC SLEP

Cost Categories	FY 2017		FY 2019	
	Qty *(Each)*	Total Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Plan Costs	3		1	
Basic Construction/Conversion		35.925		13.671
Electronics		6.542		0.275
Hull, Mechanical, and Electrical (HM&E)		33.850		8.660
Other Cost		3.983		0.715
Total Ship Estimate		**80.300**		**23.321**
Net P-1 Funding		**80.300**		**23.321**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy				Date: March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5139 / LCAC SLEP		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
LCAC SLEP 86	Tecnico	2017	Sep 2018	Jan 2019	Apr 2020
LCAC SLEP 87	Tecnico	2017	Sep 2018	Jun 2019	Sep 2020
LCAC SLEP 77	Tecnico	2017	Sep 2018	Nov 2019	Feb 2021
LCAC SLEP 50	Tecnico	2019	Jun 2019	Apr 2020	Nov 2021

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5300 / Completion of PY Shpbldg Progr

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	55.700	0.000	55.700	83.772	42.077	46.351	0.000	-	227.900
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	55.700	0.000	55.700	83.772	42.077	46.351	0.000	-	227.900
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
LPD 17 Class *($ in Millions)*	-	-	-	-	-	-	39.278	19.000	4.821	-	-	63.099
ESB *($ in Millions)*	-	-	-	38.000	-	38.000	-	-	-	-	-	38.000
LCS *($ in Millions)*	-	-	-	14.000	-	14.000	24.860	-	41.530	-	-	80.390
DDG-51 *($ in Millions)*	-	-	-	-	-	-	19.634	23.077	-	-	-	42.711
TAO Fleet Oiler *($ in Millions)*	-	-	-	3.700	-	3.700	-	-	-	-	-	3.700
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**55.700**	**0.000**	**55.700**	**83.772**	**42.077**	**46.351**	**0.000**	**-**	**227.900**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total *($ in Millions)*	**-**	**-**	**-**	**55.700**	**-**	**55.700**	**83.772**	**42.077**	**46.351**	**-**	**-**	**227.900**
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Note: General Provision 8071 of the Department of Defense and Labor, Health and Human Services, and Education Appropriations Act, 2019 and Continuing Appropriations Act, 2019 directs that funds appropriated for the Completion of Prior Year Shipbuilding Programs be merged with and available for the same purposes as the appropriation to which transferred.

[P5 / [2127] Littoral Combat Ship (LCS)]: Funds in FY 2020 are for the Government responsible portion of the shipbuilding construction contract overrun for LCS 23, LCS 25, and LCS 26 ($14.0M).

[P5 / (3039) ESB]: Funds in FY 2020 support ESB 5 repairs resulting from the National Steel and Shipbuilding Company (NASSCO) graving dock flooding incident in July 2018 ($38.0M).

[P5 / [5025] TAO Fleet Oiler]: Funds in FY 2020 are for Government Furnished Equipment (GFE) for the T-AO 206 ($3.7M).

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5300 / Completion of PY Shpbldg Progr
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	Ship Estimate				- / 0.000	- / 0.000	- / 0.000	- / 55.700	- / 0.000	- / 55.700
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 0.000**	**- / 0.000**	**- / 55.700**	**- / 0.000**	**- / 55.700**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Exhibit P-5, Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5300 / Completion of PY Shpbldg Progr	**Item Number / Title [DODIC]:** Ship Estimate
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	0.000	0.000	55.700	0.000	55.700
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	0.000	0.000	55.700	0.000	55.700
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**0.000**	**0.000**	**55.700**	**0.000**	**55.700**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Millions)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2018			FY 2019			FY 2020 Base			FY 2020 OCO			FY 2020 Total		
	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*	Unit Cost *($ M)*	Qty *(Each)*	Total Cost *($ M)*
Completion of PY Shipbuilding Programs - [2127] Littoral Combat Ship (LCS) Cost																		
1.1) Government responsible portion of shipbuilding contract overrun for LCS 23, 25, 26	-	-	-	-	-	-	-	-	-	-	-	14.000	-	-	-	-	-	14.000
Subtotal: Completion of PY Shipbuilding Programs - [2127] Littoral Combat Ship (LCS) Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***14.000***	**-**	**-**	**-**	**-**	**-**	***14.000***
Completion of PY Shipbuilding Programs - (3039) ESB Cost																		
2.1) ESB 5 repairs	-	-	-	-	-	-	-	-	-	-	-	38.000	-	-	-	-	-	38.000
Subtotal: Completion of PY Shipbuilding Programs - (3039) ESB Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***38.000***	**-**	**-**	**-**	**-**	**-**	***38.000***
Completion of PY Shipbuilding Programs - [5025] TAO Fleet Oiler Cost																		
5.1) Government Furnished Equipment (GFE) for T-AO 206	-	-	-	-	-	-	-	-	-	-	-	3.700	-	-	-	-	-	3.700
Subtotal: Completion of PY Shipbuilding Programs - [5025] TAO Fleet Oiler Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***3.700***	**-**	**-**	**-**	**-**	**-**	***3.700***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**55.700**	**-**	**-**	**0.000**	**-**	**-**	**55.700**

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Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5092 / Moored Training Ship

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	2	-	-	-	-	-	-	-	-	-	-	2
Gross/Weapon System Cost *($ in Millions)*	2,186.336	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	2,186.336
Less PY Advance Procurement *($ in Millions)*	824.541	-	-	-	-	-	-	-	-	-	-	824.541
Net Procurement (P-1) *($ in Millions)*	1,361.795	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	1,361.795
Plus CY Advance Procurement *($ in Millions)*	824.541	-	-	-	-	-	-	-	-	-	-	824.541
Total Obligation Authority *($ in Millions)*	**2,186.336**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**2,186.336**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	14.810	3.000	11.740	4.800	-	4.800	-	-	-	-	-	34.350
Total *($ in Millions)*	**2,201.146**	**3.000**	**11.740**	**4.800**	**-**	**4.800**	**-**	**-**	**-**	**-**	**-**	**2,220.686**
Gross/Weapon System Unit Cost *($ in Millions)*	1,093.168	-	-	-	-	-	-	-	-	-	-	1,093.168

Description:

(1) The details of this program are classified CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

Characteristics:

	MTS-701	MTS-711
Length Overall	433 ft	433 ft
Beam	33 ft	33 ft
Displacement	7,500 LT	7,500 LT
Draft	27 ft	27 ft

Production Status:	MTS- 701 (1)	MTS- 711
Contract Award Date	Feb 2015	May 2017
Months to Completion		
a) Award to Delivery	55 months	46 months
b) Construction Start to Delivery	55 months	46 months
Delivery Date	Sep 2019	Mar 2021
Completion Of Fitting Out	Sep 2019	Mar 2021
Obligation Work Limit Date	Aug 2020	Feb 2022

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	Apr 2008	Jan 2015		
Preliminary Design	Jan 2012	N/A		
Contract Design	Feb 2012	N/A		

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5092 / Moored Training Ship

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Detail Design	Feb 2012	N/A		
Request for Proposals	N/A	N/A		
Design Agent	ELECTRIC BOAT			

Classification of Cost Estimate:

Justification:
The details of this program are classified CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

Footnotes:
(1) The details of this program are CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			**Date:** March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		**P-1 Line Item Number / Title:** 5092 / Moored Training Ship		
Cost Categories	**FY 2015**		**FY 2017**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Design	1	482.400	1	46.449
Plans/Conversion		387.700		382.214
GFE		30.600		31.100
Basic Construction		421.321		404.552
Total Ship Estimate		**1,322.021**		**864.315**
Less Advance Procurement FY 2012		131.200		-
Less Advance Procurement FY 2013		283.453		-
Less Advance Procurement FY 2014		170.100		37.200
Less Advance Procurement FY 2015		-		64.388
Less Advance Procurement FY 2016		-		138.200
Net P-1 Funding		**737.268**		**624.527**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy					Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1			P-1 Line Item Number / Title: 5092 / Moored Training Ship		
Ship	**Shipbuilder**	**Fiscal Year**	**Contract Award**	**Start of Construction**	**Delivery Date**
MTS- 701 (1)	EB/NNSY	2015	Feb 2015	Feb 2015	Sep 2019
MTS- 711	EB/NNSY	2017	May 2017	May 2017	Mar 2021

Footnotes:

(1) The details of this program are CONFIDENTIAL and are reported annually to Congress in the classified budget justification books.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5212 / YP Craft Maintenance/ROH/SLEP

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	To Complete	Total
Procurement Quantity *(Units in Each)*	12	-	-	-	-	-	-	-	-	-	-	12
Gross/Weapon System Cost *($ in Millions)*	43.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	43.201
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	43.201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	43.201
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**43.201**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**-**	**43.201**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Plus Outfitting and Post Delivery *($ in Millions)*	0.426	-	-	0.145	-	0.145	-	-	-	-	-	0.571
Total *($ in Millions)*	**43.627**	**-**	**-**	**0.145**	**-**	**0.145**	**-**	**-**	**-**	**-**	**-**	**43.772**
Gross/Weapon System Unit Cost *($ in Millions)*	3.600	-	-	-	-	-	-	-	-	-	-	3.600

Description:

Naval Academy YP (Yard Patrol) craft are utilized to train midshipmen on piloting, seamanship, navigation, and engineering. The YP Service Life Extension Program (SLEP) extends the YP 676 Class service life approximately 10 years beyond the current average vessel age of 27 years. YP SLEP work items include but are not limited to the following: hull fendering, electronic navigation system components, paint and non-skid, damaged hull sections, hatches and deck planking, various pumps (bilge, seawater cooling, fire), and galley appliances. The SLEP will also include the overhaul of the engines and transformers, and propeller repair. The required repairs will vary by craft and will be conducted at both the U.S. Coast Guard Yard in Baltimore and private small business shipyards.

Exhibit P-40, Budget Line Item Justification: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N: Shipbuilding and Conversion, Navy / BA 05: Auxiliaries, Craft, and Prior-Year Program Costs / BSA 1: Auxiliaries, Craft and Prior Yr Program Cost	**P-1 Line Item Number / Title:** 5212 / YP Craft Maintenance/ROH/SLEP

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Characteristics:

	YP 676 Class
Length Overall	108 ft
Beam	24 ft
Displacement	173 tons
Draft	6 ft

Production Status:	YP SLEP 695	YP SLEP 694	YP SLEP 686	YP SLEP 689	YP SLEP 692	YP SLEP 698	YP SLEP 690
Contract Award Date	Aug 2016	Jul 2018	Mar 2019	Apr 2019	Apr 2019	Jul 2019	Jul 2019
Months to Completion							
a) Award to Delivery	31 months	8 months	7 months	6 months	6 months	6 months	6 months
b) Construction Start to Delivery	7 months	7 months	5 months	5 months	5 months	5 months	5 months
Delivery Date	Mar 2019	Mar 2019	Oct 2019	Oct 2019	Oct 2019	Jan 2020	Jan 2020
Completion Of Fitting Out	Jun 2019	Apr 2019	Jan 2020	Jan 2020	Jan 2020	Apr 2020	Apr 2020
Obligation Work Limit Date	May 2020	Mar 2020	Dec 2020	Dec 2020	Dec 2020	Mar 2021	Mar 2021

Production Status:	YP SLEP 691	YP SLEP 683	YP SLEP 684	YP SLEP 700
Contract Award Date	Oct 2019	Jan 2020	Jan 2020	Apr 2020
Months to Completion				
a) Award to Delivery	6 months	6 months	6 months	6 months
b) Construction Start to Delivery	5 months	5 months	5 months	5 months
Delivery Date	Apr 2020	Jul 2020	Jul 2020	Oct 2020
Completion Of Fitting Out	Jul 2020	Oct 2020	Oct 2020	Jan 2021
Obligation Work Limit Date	Jun 2021	Sep 2021	Sep 2021	Dec 2021

Design Schedule	Start / Issue	Complete / Response	Reissue	Reissue Complete / Response
Issue Date for TLR	N/A	N/A		
Issue Date for TLS	N/A	N/A		
Preliminary Design	N/A	N/A		
Contract Design	N/A	N/A		
Detail Design	N/A	N/A		
Request for Proposals	Jun 2016	Sep 2017		
Design Agent	PEO (Ships), PMS 325 Detachment Boston			

Classification of Cost Estimate: N/A

Exhibit P-5c, Ship Cost Analysis: PB 2020 Navy			**Date:** March 2019	
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1		**P-1 Line Item Number / Title:** 5212 / YP Craft Maintenance/ROH/SLEP		
Cost Categories	**FY 2016**		**FY 2017**	
	Qty *(Each)*	**Total Cost** *($ M)*	**Qty** *(Each)*	**Total Cost** *($ M)*
Basic Construction/Conversion	6	17.936	6	17.936
Change Orders		0.944		0.469
Electronics		1.458		1.458
Hull, Mechanical, and Electrical (HM&E)		1.500		1.500
Total Ship Estimate		**21.838**		**21.363**
Net P-1 Funding		**21.838**		**21.363**

Exhibit P-27, Ship Production Schedule: PB 2020 Navy	Date: March 2019
Appropriation / Budget Activity / Budget Sub Activity: 1611N / 05 / 1	**P-1 Line Item Number / Title:** 5212 / YP Craft Maintenance/ROH/SLEP

Ship	Shipbuilder	Fiscal Year	Contract Award	Start of Construction	Delivery Date
YP SLEP 695	USCG YARD	2016	Aug 2016	Aug 2018	Mar 2019
YP SLEP 694	LYON SHIPYARD/TECNICO CORP.	2016	Jul 2018	Aug 2018	Mar 2019
YP SLEP 686	USCG YARD	2016	Mar 2019	May 2019	Oct 2019
YP SLEP 689	LYON SHIPYARD/TECNICO CORP.	2016	Apr 2019	May 2019	Oct 2019
YP SLEP 692	LYON SHIPYARD/TECNICO CORP.	2016	Apr 2019	May 2019	Oct 2019
YP SLEP 698	LYON SHIPYARD/TECNICO CORP.	2017	Jul 2019	Aug 2019	Jan 2020
YP SLEP 690	LYON SHIPYARD/TECNICO CORP.	2017	Jul 2019	Aug 2019	Jan 2020
YP SLEP 691	LYON SHIPYARD/TECNICO CORP.	2017	Oct 2019	Nov 2019	Apr 2020
YP SLEP 683	LYON SHIPYARD/TECNICO CORP.	2017	Jan 2020	Feb 2020	Jul 2020
YP SLEP 684	LYON SHIPYARD/TECNICO CORP.	2017	Jan 2020	Feb 2020	Jul 2020
YP SLEP 700	LYON SHIPYARD/TECNICO CORP.	2017	Apr 2020	May 2020	Oct 2020